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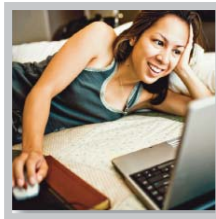
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Handbook of social media for researchers and supervisors

Digital technologies for research dialogues



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Handbook of social media for researchers and supervisors

Digital technologies for research dialogues

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This quote from an article by G. Small in Nature, vol. 479, page 141 summarises how new technologies are changing the way in which the research dialogues are being conducted:

“The real value of social media for scientists (aside from teaching us to communicate concisely) may be that we are forced to think about how to share ideas with a broader audience, one that ultimately pays for most of our research: taxpayers. Public conversations about our research make scientists accountable for delivering something of value to those taxpayers. In an era of budget cutting, early-career scientists will have to be effective ambassadors for the profession. This might manifest in conversations with family members or with strangers sitting next to us on a plane, or it might mean posting videos on YouTube or blogging about our ongoing research. The days of scientists communicating only with each other, in the languages of our individual disciplines, and relying on science journalists to translate for the public, are rapidly coming to an end.”

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Boost your career with social media

“...that if you are passionate about a topic and argue your perspective in a compelling manner, you can begin to generate a following...If people find your opinions and perspective interesting, they will do a lot of the work for you. By design, social media is a conversation. When you post information, people like, comment on, or forward your thoughts. This means that not only can you put ideas out there but you can learn a lot as well.”

Boost your career with social media: tips for the uninitiated,
<http://blogs.hbr.org/hmu/2011/12/boost-your-career-with-social.html>
[accessed 16 August 2012]

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This report is dedicated to the participants whom we surveyed in 2011-2012 and who were very generous with their time and attention to us. It is only with their insights and stories of social media use that we have been able to develop this handbook.

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Know the basics of putting your professional self online

“Social media is not just for socializing. When handled correctly, you can use it to enhance your personal brand, establish your expertise, or demonstrate your digital fluency. Commit to using social media for professional reasons and be proactive about managing your activity and image. Consider what potential employers or colleagues will see - you don't want them to discover only pictures of you and your dog, or worse. Make sure at a minimum you have a LinkedIn account with a completed profile. Try tweeting or blogging about your area of expertise, thereby creating content that others can forward, retweet, or repost. This can help you establish yourself as an expert in your field.”

Harvard Business Review Management Tip, 9 March 2012,
<http://hbr.org/tip/2012/03/09/know-the-basics-of-putting-your-professional-self-online> [accessed 16 August 2012]

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1 Introduction

Welcome to the 'Handbook of social media for researchers and supervisors: digital technologies for research dialogues'

1.1 About this handbook

The goal of this handbook is to assist researchers, that is, postgraduate researchers and early career researchers, and their supervisors to adopt and use social media tools in the service of their research, and in particular, in engaging in the discourse of research. The handbook presents an innovative suite of resources for researchers and supervisors to develop and maintain a social media strategy for research dialogues.

1.2 Why is this handbook needed?

Social media such as wikis, blogs, social bookmarking tools, social networking websites (e.g. Facebook), or photo- and video-sharing websites (e.g. Flickr, YouTube) facilitate gathering and sharing of information and resources and enable collaboration. Social media is a new form of communication that is changing behaviour and expectations of researchers, employers and funding bodies. Although many researchers and their supervisors interact with these tools and discuss their experiences either on the web, with their peers, or in networking events, the material that is out there does not constitute an organised and convenient set of resources for researchers and supervisors to learn about the opportunities and challenges of using social media tools in their research discourse.

This handbook aims to provide a single resource for researchers and their supervisors who are looking for best practice guidance in using social media in research dialogues. The handbook has been written in a way that each section stands on its own as much as possible and therefore, it is not necessary to read the handbook from cover to cover.

1.3 Who is this handbook for?

This handbook has been written for:

- researchers, that is, postgraduate researchers (PGRs), and early career researchers who want to learn about the role of social media in research dialogues
- supervisors and managers who want to expand their understanding of what social media offers, and the risks and opportunities involved.

1.4 Examples of social media use by researchers and supervisors

This handbook makes extensive use of examples from our conversations with researchers and supervisors. However, the reader may like to note that examples represent **individual practices of researchers and supervisors** that are influenced by several contextual factors such as their peers, their disciplines of research, the research projects, preferences of other members of the research teams, workload constraints, and the overall environment of their institutions.

1.5 How is the handbook organised?

- In Section 2, we present the details of the project and the research that was undertaken to develop this handbook.
- Sections 3 to 20 of the handbook contain a suite of resources to assist researchers and supervisors to evaluate and choose social media tools, and to develop a social media strategy for their research discourse with peers, project teams, and the community at large.
- In Section 14, we have given some recommendations for supervisors, managers and institutions for integrating social media in research dialogues and the steps that they should take for 'teaching' their researchers about digital professionalism.

Table 1: Contents of the handbook

#	Topic	Description
2	Project that led to this handbook and the key findings	The project that led to this handbook, the research methodology, and our observations on how social media tools are being used by researchers
3	Social media tools being used in research dialogues	Six categories of social media tools and a range of tools for each of the categories are presented
4	Personae of researchers using social media	Personae of researchers using social media in research dialogues are presented
5	Personae of supervisors using social media	Personae of supervisors using social media in research dialogues are presented
6	Developing a social media strategy	How researchers and supervisors can develop and maintain a social media strategy
7	Tips for social networking	Tips for social networking for research dialogues
8	Digital professionalism	The issue of digital professionalism is discussed; guidelines for digital professionalism are presented
9	Social media etiquette	Checklist on social media etiquette for research dialogues
10	Social media and intellectual property rights	Resources related to intellectual property rights, copyrights and other legal ramifications of sharing and interacting in social media tools are listed
11	Ethical issues in social media research	We examine the ethical issues related to employing social media tools in research, and the challenges involved
12	Cloud computing and impact on research data storage	We discuss the concept of cloud computing and how it influences research practice
13	Vitae's Researcher Development Framework (RDF) and social media tools	Examples of how social media tools can support the researchers' skills development encompassed in the RDF
14	Implications for supervisors and institutions due to the use of social media tools in research dialogues	The challenges for institutions and supervisors that arise from researchers using social media in research dialogues; recommendations for the adoption and use of social media in research dialogues

#	Topic	Description
15	Guidance notes on a selected set of social media tools	Briefing notes (fact sheets) designed to provide guidance around the effective use of these tools
16	Strengths and weaknesses of some of the tools for peer to peer and researcher to supervisor dialogues	Strengths and weaknesses of the tools focusing specifically on the degree to which each tool permits interactive peer to peer and researcher to supervisor research dialogues
17	Using mobile Apps to support research	Outlines how researchers are using Apps on a smart phone, Tablet and other mobile devices to support research
18	Digital literacy and digital scholarship	Definitions of digital literacy and digital scholarship and related resources from the literature
19	Bibliography	List of resources on use of social media tools in education, supervision at a distance, and so on
20	Dissemination activities related to this handbook	List of posters, conference exhibitions, and training workshops related to this handbook

1.6 Key terms used in the handbook

In this handbook:

We have used the term '**researcher**' to imply a postgraduate researcher, (PGR) or an early career researcher

We have used the term '**supervisor**' to imply a supervisor or manager who is associated with supervising and managing researchers, or is responsible for research careers training and development

We have used the term '**team member**' to imply a member of the supervisory team, a research collaborator or an industrial partner, that is, anybody with whom the researcher or supervisor is involved, in one or more research projects

We now define some terms that appear in this handbook, or that you may encounter in the literature on social media.

Cognitive surplus

Clay Shirky¹ believes that new technologies enabling shared online work and loose collaboration and taking advantage of 'spare' brainpower will change the way society works. Cognitive surplus represents the ability of the world's population to volunteer, contribute and collaborate on large scale and sometimes global projects – and that this cognitive surplus can have societal benefits.

¹ Shirky, C. (2010). Cognitive surplus: creativity and generosity in a connected age, Allen Lane.

Community

A **community** may be defined as a group of individuals sharing common interests or purposes. Wikipedia defines the online community as “a group of people that primarily interact through media such as newsletters, telephone, email, internet social networks and instant messaging rather than face to face”.

E-professionalism or digital professionalism

Professionalism, appropriateness for public consumption, and individual or institutional representation in digital media content are just some of the salient issues that arise when considering the ramifications of researchers’ digital behaviour and its reflection on them and their institutions or projects, and even funding bodies.

E-professionalism or digital professionalism is defined as the attitudes and behaviours reflecting traditional professionalism paradigms that are manifested through digital media.

Public engagement

Public engagement describes how researchers connect and share their work with the public to build trust, understanding and collaboration, and increase the relevance and impact of research on society.

Social computing

Social computing describes an individual’s use of technology such as social media tools for participating in group activities such that they are not only able to reach out to others through their individual voice but also receive feedback and inputs from a global audience.

Social media

Social media is an online environment opened for the purposes of mass collaboration, where all invited participants can create, post, rate, enhance, discover, consume, and share content without a direct intermediary (Bradley and McDonald, 2011)². The term **media** in this context is a collaboration environment characterised by storage and transmission of messages around and about content, while **social** describes the distinct way these messages propagate as one-to-many and many-to-many conversations.

Mass collaboration is enabled by and conducted through social media. It involves people, who may not otherwise have had a pre-existing relationship, quickly and effectively contributing to and giving feedback on the development of an idea, artefact, process, plan, and so on.

The key aspect of a social media is that it involves wider participation in the creation of information that is shared. Blogs, wikis, social networking websites, such as Facebook, Twitter and Flickr, and social bookmarking sites, such as Delicious, are examples of some of the social media tools that are being used to share and collaborate in educational, social,

² Bradley, A. J. and McDonald, M. P. (2011). The Social organization: How to use social media to tap the collective genius of your customers and employers, Harvard Business Review Press. [the glossary of this book has influenced many of the definitions in this section.]

and business contexts. When we use the term ‘tool’ in this handbook, we imply a ‘social media tool’.

The facilitation of human relationships and connections via **social media has several advantages**³. Social media is transforming one-way monologues into collaborative dialogues and interactions. It is democratising information and knowledge: it involves everyone, everywhere, in all-the-time conversations. It helps to weave communities, encourage greater openness and transparency, accelerate information sharing, help to access diverse perspectives, mobilise people, stimulate collaborative knowledge building and reduce the cost of participation and co-ordination of resources and actions.

Social media present dangers too⁴. For example, these tools become echo chambers⁵ making it difficult to hear distinct and different voices, or polarised discussions as users selectively view materials that are aligned with their world-view or opinions. Scientists retreat to narrow research topics that limit the healthy inter-disciplinary dialogues. Another risk is that most often ‘half-baked’ ideas are made public, or mis-information and rumours can spread which are unfiltered by professionals, thereby, reducing the credibility of these sources. Also, social media can distract from deep reflection and cause information overload as individuals respond to frequent interruptions. Security and privacy breaches, identity theft, online bullying and disclosure of embarrassing personal information are some of the other dangers of social media that are frequently discussed.

The contributions of the participants using social media tools are persistent which implies that they are stored for others to view, share, comment on, or add to. Increasingly employers and prospective collaborators look at the social media profiles of the candidates. For example, www.bbc.co.uk/news/uk-england-16859744 is an article accompanied by video that discusses how social media profiles can have an impact on employment and other opportunities. Therefore, great care has to be taken when participating in the social media space.

Social networking

Social networking implies establishing many-to-many connections for the purposes of sharing information with the networks or subsets of the networks. Although one-to-one connections are possible on social networking sites, the main activity is engaging with a broader range of participants in the network.

Social software

The term ‘social software’ implies software that enables, captures, and organises interactions between participants. The ability of social software to enable mass collaboration differentiates it from other collaboration technologies. Examples of social software include the technologies that enable blogs, wikis, discussion forums, social networking, and so on.

³ Greenhow, C. (2011). Online social networks and learning, *On the Horizon*, vol. 19, no. 1, pp. 4-12.

⁴ http://www.ssireview.org/articles/entry/working_wikily [accessed 16 August 2012]

⁵ Weller, M. (2011). *The digital scholar: How technology is transforming scholarly practice*, Bloomsbury Academic.

Three-dimensional virtual environments

Three-dimensional virtual environments (also, called synthetic worlds or virtual worlds) are multimedia environments in which users can 'inhabit' and interact via their graphical self-representations known as 'avatars'. Users converse in real time through gestures, audio, text-based chat, and instant messaging.

3D virtual environments support synchronous communication and collaboration more effectively than 2D web-based environments. They do this by extending the user's ability to employ traditional communication cues of face-to-face interactions, such as gestures and voice, and having a sense of presence and a sense of place in a way that 2D (web-based) environments do not. Users experience others as being present in the same environment even though they may be geographically distributed. An example of a 3D virtual world is Second Life (www.secondlife.com/).

Web 2.0

Web 2.0 implies how the web has evolved from a collection of hyperlinked pages to a platform for participation and mass collaboration. Social software enables Web 2.0.

"Once upon a time, secretaries were numerous and maintained the social fabric in organizations by circulating cards, sending reminders, organizing small celebrations, and distributing news. Social networking software may restore social capital that office automation slowly eroded",
<http://research.microsoft.com/en-us/um/people/jgrudin/publications/newwave/socialnetworking2009.pdf>
[accessed 16 August 2012]

2 About the project and the findings

The goal of the project was to investigate whether and how postgraduate researchers and early career researchers are using social media tools in their research dialogues.

Our specific aims were to develop a suite of resources to assist researchers to evaluate and choose social media tools, and to develop a social media strategy for research discourse with peers, supervisors and the community at large. We also wanted to make supervisors aware of the opportunities and challenges of adopting social media tools in their research dialogues. Therefore, it was important to determine the use of social media amongst supervisors too. Hence, we interviewed a number of supervisors in this project to investigate their usage and perceptions of social media.

2.1 How the data was collected?

The project was informed by a number of inputs:

We surveyed over 105 researchers in the UK, USA, Europe and Australia via mailing lists, discussion forums and through their presence on social media such as through their blogs, or their participation in Twitter, etc. The participants were from a variety of disciplines in order to ensure that we captured discipline variances both in need and application.

In this project, we were not concerned about the use of social media by research teams in sharing research data in social sciences, sciences and humanities⁶, or the use of social media in mass collaboration projects such as in disaster response, or community safety, or in environmental conservation⁷. We were also not concerned on the use of social media by researchers for research data collection, analysis and interpretation. Our focus was on the use of social software to support research discourse and dialogues.

The survey involved enquiring about their use of social software in the service of their research, and in particular in engaging in the discourse of research. We asked about which social software tools they use, and for what roles? We prompted them to map their use of social media tools onto four function categories we had observed in our previous research as essential: formal dialogues, informal interactions, documentation, and space for reflection

The survey was conducted through face-to-face meetings, workshops and email interviews⁸ during 2011-2012

We surveyed 45 supervisors in the UK and abroad and enquired how they were using technology for formal dialogues and meetings with their postgraduate researchers, for informal interactions, for document authoring and for document storage. We investigated their concerns and apprehensions about social media use by their researchers.

⁶ Borgman, C. L. (2007). *Scholarship in the digital age: Information, infrastructure and the Internet*, The MIT Press.

⁷ Shneiderman, B. Preece, J. and Pirolli, (2011). Realizing the value of social media requires innovative computing research, *Communications of the ACM*, vol. 54, no. 9, pp. 34-37.

⁸ Debenham, M. (2007). Epistolary interviews online: a novel addition to the researcher's palette, http://www.jisctechdis.ac.uk/assets/Documents/learnersmatter/Epistolary_Interviews_On-line.pdf [accessed 16 August 2012]

On thematic analysis⁹ of the qualitative data that we gathered, we were able to map researchers' and supervisors' use of social media onto the six function categories: formal dialogues with team members, informal interactions with peers and supervisors, document authoring and storage, space for reflection, engaging with the community, and how they keep themselves informed.

We conducted a literature review of how social media tools can help in research and the development of research skills.

We carried out phenomenological analysis¹⁰ of the web materials, i.e. we analysed blogs and experience stories, of individual researchers and research groups to examine the advantages and challenges of using social media tools in research dialogues.

We conducted a literature review on how individual tools such as Twitter, YouTube, LinkedIn, and so on, could support research dialogues

We carried out a literature review on issues of e-professionalism or digital professionalism and the risks of using social media, the legal ramifications such as copyright issues and intellectual property rights, the ethical issues associated with conducting research involving social media tools, the impact of cloud computing on research practices, and the concepts of digital literacy and digital scholarship. The treatment of these topics in this handbook is not exhaustive but we have included several resources that colleagues can refer to for delving deeper into any of these topics and for further investigations

We interviewed some researchers who are using mobile applications (Apps) on their phones and Tablets to support their research. We have captured their experiences in the form of personal stories in this handbook.

2.2 Findings on the use of social media by early career researchers

The key observations from our empirical research are as follows:

Face-to-face interactions with supervisors and peers are key in research dialogues

For campus-based researchers occasions such as departmental seminars, sharing common office area, meeting over lunch, and training events play a key role in informal interactions with peers to discuss their research and the research process, and getting feedback and inputs. The researchers in our survey mentioned that the technologies couldn't provide the experience of face-to-face meetings with their supervisors and collaborators. Even if researchers are not based on the campus but who regularly interact with their supervisors and collaborators by email, or by using technologies such as [Skype](#), [Blackboard Collaborate](#) or telephone-conferencing, travelling to the campus or meeting at a convenient location for face-to-face interactions is very important to them.

An early career researcher discusses her thoughts about face-to-face communications in research dialogues:

⁹ Resources on the thematic analysis technique: Thomas, D.R. (2006). "A General Inductive Approach for Analyzing Qualitative Evaluation Data", *American Journal of Evaluation*, vol. 27, no. 2, pp. 237-246. Buetow, S (2010). Thematic Analysis and its Reconceptualization as Saliency Analysis, *Journal of Health Services Research & Policy*, vol. 15, no. 2, pp. 123-125. Braun, V. and Clarke, V. (2006). Using Thematic Analysis in Psychology, *Qualitative Research in Psychology*, vol. 3, pp. 77-101.

¹⁰ Langdridge, D. (2007). *Phenomenological Psychology: Theory, Research and Method*. Harlow: Pearson Education.

Face-to-face communication is like the gold standard...with introduction of any technology, things get impoverished... something gets stripped away... it could be the image, or the tone of voice, or the physical quality of the voice...

Face-to-face communications are more stimulating than using technologies... more sense of connection... more sense of engagement... both emotional and intellectual engagement with people...even body postures affect thinking... both body and mind are engaged... technology separates the body and mind... it is a fragmented experience, less embodied...

Face-to-face communications unlock different pathways in the brain as it is a holistic form of engagement and it gets the best out of you which technologies can't.

Some supervisors in our survey remarked how whiteboards, flipcharts and having smart white boards in meeting venues are very helpful in face-to-face meetings with their researchers.

Email is the most important tool

Even though there is a widespread adoption of social media technologies, email remains the most important tool for both researchers and supervisors. Email is used for having discussions, for scheduling meetings, for sharing documents, and for sending quick and informal updates. Several participants in our research mentioned that because of the variety of tools in the calendar function that colleagues use (e.g. within Microsoft's Outlook, or the Google Calendar, or the iCal on the Mac), they prefer arranging the meetings by email; as one of them said: "you always check email; so it is easier to set up meetings by email".

We also noted that some of the supervisors in our dataset have not moved to social media tools and use email for research dialogues with their postgraduate researchers and collaborators alongside face-to-face communications and meetings.

A supervisor mentions her use of tools in formal dialogues with postgraduate researchers and for document storage:

I am pretty conservative... For supervision, we mostly meet f2f [face-to-face] or on the phone. For circulating documents we tend to use email. I have a project space on the university server where I store the documents but we don't have any shared space for storing documents

Wide scale adoption of social media tools

The researchers manifest different behaviours from the majority of those in the Researchers of Tomorrow survey (Carpenter et al., 2010)¹¹ of some 5,400 postgraduate researchers, which reported less than 30% take-up of specialist and Web 2.0 tools. Even the most conservative researchers in our survey are using some Web 2.0 or social software tools. The Researchers of Tomorrow study found that the lack of technology adoption by postgraduate researchers in their research: "...is not a question of lack of skills; it is more likely to be because the postgraduate researchers do not see the immediate utility of the technology within their research and their preferred ways of working." (p. 6). The active community that we observed among The Open University (OU) researchers and the researchers that we contacted in other institutions may well be one reason for the differences in behaviour. In an active community, researchers can see the value of the tools demonstrated by their peers: "It works for me – here, let me show you" is a compelling argument for technology adoption. Researchers mentioned the use of Apps¹² on mobile phones and the iPad, especially for note taking, for reflection, for time-management and scheduling.

A postgraduate researcher's use of technologies for formal dialogues with supervisors:

We're quite old-fashioned as a team - the only technology we use to keep in touch is email. We do have regular face-to-face meetings, and I do use my iPad in those sessions. I love the 'Papers'¹³ application! I always have my full library on the iPad which comes in extremely handy when I want to show my supervisors something I've read and annotated.

Researchers introduce each other to technologies

The use of tools such as social bookmarking tools propagates from one researcher to many, as the advantages are made manifest. One example is the 'drift' in bibliographic referencing tools. For many years, [EndNote](#) was the software of choice at the OU and other institutions as the institutions provided licenses. A few years ago, the preference shifted to [Zotero](#), a free extension to [Mozilla's Firefox browser](#) designed to enable users to collect, manage, and cite research sources. The directness of interaction with web resources was attractive. Now [Mendeley](#), with free backup of references to an online repository, is the preferred tool¹⁴, because, as one postgraduate researcher expressed it:

"Its [Mendeley] integration with the web, easy import of references, and PDF annotation tools are definitely killer features".

¹¹ Carpenter, J., Wetheridge, L., Smith, N., Goodman, M., and Struijvé, O. (2010). Researchers of Tomorrow: A three year (BL/JISC) study tracking the research behaviour of 'Generation Y' doctoral students. Available at: http://www.efc.co.uk/projects/researchers_of_tomorrow.jsp [accessed 16 August 2012].

¹² Things you should know about iPad Apps for learning, EDUCAUSE 2011, <http://net.educause.edu/ir/library/pdf/ELI7069.pdf> [accessed 16 August 2012]

¹³ <http://libguides.mit.edu/content.php?pid=174869&sid=1481874> [accessed 16 August 2012]

¹⁴ For a comparison amongst various bibliographic management systems, such as EndNote, RefWorks, Zotero and Mendeley, refer to this paper: Hensley, M. K. (2011). Citation Management Software: Features and Futures, Reference & User Services Quarterly, vol. 50, no. 3, pp. 204-208.

Researchers share pointers to valuable blogs and online resources through blog posts or Twitter, or in face-to-face events, or sometimes through email.

An early career researcher recounts his reasons for joining Twitter:

I joined Twitter because it was another social media platform, and there is a little bit of pressure on 'new academics' to use social media tools (such as blogs, Facebook, Twitter, etc.) to share, promote and discuss their research. The department was pushing the idea of 'digital scholars' and 'digital scholarship' so I think I was exposed to the idea from early on. Then another postgraduate researcher suggested it was useful for his research, so I decided to try it as well.

Advantages of participating in and interacting with social media tools

The researchers mentioned how participating in Twitter, for example, helped them to vent negative and positive emotions and to combat feelings of isolation and a sense of camaraderie, particularly, when they were struggling for ideas or having the writer's block. Also, writing a blog and receiving comments gave them an opportunity to explore their own and others' ideas.

An early career researcher recounts the role of Twitter in his PhD:

At the time, I used it to expand my literature search since you can find links to journal and web articles if you follow the right people. I used to follow other researchers in <research areas>. However, mostly the links are to web articles and blogs (which may then itself point to a journal). It is not a very good way to get the latest journal articles, but it will point you to interesting ideas and topics, which you can then follow-up on your own.

It was also very good to follow conferences. There are always a few people at conferences now who will tweet about talks. You can then get names of papers and authors from them.

Functions in the research discourse that social media tools are enabling

Our research has shown that researchers are using social media tools for research discourse related to six functions: formal dialogue with supervisors, informal interactions with peers and supervisors, document authoring, and exchange of documents with supervisors and storage, space for reflection, working with ideas and the process, engaging with the community at large and for keeping themselves informed. In Section 3 of the handbook, we discuss in detail with examples the usage of social media tools for these six functions.

Use of social media tools to create professional profiles or presence

Instead of setting up websites on institutional servers, researchers are now using LinkedIn and sites such as [Academia.edu](https://www.academia.edu/), and even blogs to set up their professional presence on the Web. LinkedIn, for example, has options for describing the expertise, listing the educational qualifications, describing the professional experience, and so on. The researchers felt that it was much easier to maintain their professional profile by using social media sites because of

the ease of making the changes and the variety of options that the sites provide to convey the information about research backgrounds and pursuits. Further, sites such as LinkedIn and Academia.edu enable the researchers to connect to people with whom they are collaborating or with colleagues in similar research area. [Twitter](#) feeds, updates, [YouTube](#) videos, etc. can be linked in to the profile on LinkedIn. So, the connections receive updates from one another via LinkedIn, and in this way they are made aware of one another's activities. One of the advantages of Academia.edu, which a researcher mentioned, is that being on Academia.edu helps them to know if a researcher in their area has uploaded any papers; the site also keeps them informed about who is following their work and who has downloaded their papers: "which is nice for knowing to what extent people are becoming aware of what I do".

An early career researcher discusses about the blog that she has set up for a new research strand:

I use blog as a website...a place that I can keep it updated with the research ideas and events in my specialized area... it is like having a web presence for my research that I can myself edit...I have kept it very simple...a blog for me is a platform to show that the work is in progress...WordPress is easy to use; once you set up the parameters, you are ready to go...

Sometimes supervisors block the adoption of technologies

Researchers report that they have suggested and then abandoned technologies such as hosted document management tools, because their supervisors declined their use, or didn't want to spend the time learning their usage, or couldn't see the advantages over the tools that they already use (for example, university servers for document storage, or email as a means for communication and for sharing documents).

Researchers also adapt their tools to suit different supervisors, for example sending SMS texts (text-messaging) to the supervisor who shares his mobile number, but emailing the one who does not; or using [Dropbox](#) for sharing files with one supervisor, and emailing the attachments to another, or giving print-outs to a third one who would prefer to read and comment on the paper-copy.

One postgraduate researcher mentions how she tried introducing Google Docs to her supervisors but they didn't adopt it:

The nearest in electronic communications that I got to with my supervisors was email. I sent them some write-ups via Google Docs but they didn't access them. ... but they preferred receiving documents by email. They printed out the documents and made comments by hand rather than using review comments or tracked changes in Word; so I used to transfer their comments in Word after the meeting so that I had an electronic record of their comments and advice.

Researchers choose technologies and adapt as per their supervisors' preferences

Carpenter et al. (2010) state that: "the postgraduate researchers are heavily influenced by their supervisors and very aware of the need for authority and authenticity in the research resources they select ... the postgraduate researchers' supervisors play a critical role in their choice and take-up of technology applications." (p.13).

However, our empirical investigations with postgraduate researchers have shown that they select technologies based on recommendations from peers. They are better informed about social media tools than we first thought, and they mix and match the technologies to suit the supervisory practices, the expectations and preferences of the supervision team, where the supervisors are based, and the character of the research project.

Professors tell me it is difficult to stay more informed than their best postgraduate researchers because the postgraduate researchers have more opportunity to go online and get the latest information. So they are learning from their postgraduate researchers, albeit reluctantly. There is a breakdown in traditional hierarchies. **[Jonathan Grudin, a researcher at Microsoft]**¹⁵

Experimenting with different combinations of tools, evaluating them and giving up some of them

Both researchers and supervisors mentioned trying different combinations of tools: for example, in one of the projects that we reviewed, they had set up a discussion forum in the institution's virtual learning environment (VLE); within this VLE, they had an access-controlled wiki for document storage and collaborative authoring, and a website for public presence and dissemination. However, when external collaborators joined the project/research group, they set up a closed LinkedIn group for discussions because external colleagues couldn't access the institution's VLE.

A project lead discusses her experiences of using a Moodle-based virtual learning environment as a collaborative project space:

As you know that we adopted Moodle as our VLE [a virtual learning environment] a few years ago; I have set up a VLE space which has a wiki, it has a blog, a discussion forum... So in this space, we [project team] store documents, have discussions, create documents collaboratively on the wiki, and so on... one place where our project lives and is only accessible to the project team.

Many participants, and particularly postgraduate researchers, in our survey mentioned starting a Twitter account or setting up a profile in Google+, and then not being able to maintain a regular dialogue. So, some of their accounts are now dormant.

Bridging the geographical distance with part-time postgraduate researchers

Part-time researchers, who were earlier able to communicate via email or by phone, or interact with their supervisors through occasional visits to the campus, now, employ a

¹⁵ Palmer, M., Social networks bring speed and challenge to companies, FT.com (Financial Times online), December 8, 2011.

number of ways to keep in touch with their institutions and supervisors. Many postgraduate researchers are maintaining blogs or wikis so as to provide regular updates to their supervisors.

A part-time postgraduate researcher discusses his use of the blog to keep his supervisors informed about his progress:

I try to blog about my research on a private blog, talk with my advisors on Skype once a month, and meet them face-to-face once a year. ...It is difficult to blog every week. But it's a useful tool to update advisors without talking to them. The content also stays on the blog for my use/review later on.

With a number of web-conferencing tools that are now available such as Skype and Elluminate (now called Blackboard Collaborate), supervisors are able to have more regular interactions with their postgraduate researchers¹⁶

A supervisor discusses about his weekly online meetings with part-time postgraduate researchers:

We meet online with our postgraduate researchers at very regular intervals, usually weekly. This has the advantage of breaking isolation, of creating a continuous dialogue and a flow of ideas, and providing a rhythm to the postgraduate researchers' weekly routine which helps them ring-fence their research time from competing requirements and pressures from work and family.

A supervisor at The Open University, UK discusses how they have set up a VLE to support part-time MPhil students on the Virtual MPhil programme¹⁷:

Our part-time MPhil researchers study at a distance. We have set up a Virtual Research Environment for them in the Moodle-based VLE where we have resources related to research skills development, links to Elluminate rooms, a link to the Second Life campus of the university, tutorials for using technologies such as Elluminate and Second Life, and areas for each of the research topics; we post news items here; and discussion forums are set up; so there is one place that our postgraduate researchers can come for resources and collaborations. It is a rich mix of synchronous, asynchronous and immersive technologies.

Bringing dispersed researchers together

One of the interesting observations from our own experiences in the Computing Department at The Open University, UK, is that the facilities we've provided with part-time distance postgraduate researchers in mind are also being adopted by full-time campus-based postgraduate researchers, bringing the part-time and full-time postgraduate researchers into

¹⁶ Hall, J. and Rapanotti, L. (2012). Enterprising research skills: academia's changing role, International Journal of Learning and Intellectual Capital, (In Press), <http://oro.open.ac.uk/29990/> [accessed 16 August 2012]

¹⁷ The Virtual MPhil programme <http://virtualmphil.open.ac.uk/> [accessed 16 August 2012]

a regular dialogue. The campus-based postgraduate researchers saw no need for a Ning-type forum until the distance postgraduate researchers started one, and then the campus-based researchers joined in. Campus-based postgraduate researchers are attending our online seminars (on Elluminate/Blackboard Collaborate) as well as our weekly face-to-face sessions. The postgraduate researchers are keen to be part of the discussion and to keep up-to-date with other postgraduate researchers; and using digital technologies tends to leave a record; for example, because we use Elluminate's shared workspace to create notes collaboratively during online post-graduate sessions, there's a record of the discussion to put onto the group wiki¹⁸ straight away, for those who could not attend.

A postgraduate researcher reflects on the advantages of Elluminate and wiki to support part-time postgraduate researchers:

... postgraduate researchers who do not live on campus can be part of the discussion and keep up to date with other postgraduate researchers; the <Elluminate> sessions are hosted during 'off-hours', usually during the evening to accommodate for people who have full-time day jobs; they are useful for those on campus, they have two opportunities to attend post-graduate forums, in-person or online. We've used Elluminate's shared workspace to create notes about the session (collaboratively, whilst the session is running). This then gets exported as a PDF and posted on a wiki so those who did not attend can see what happened.

Longevity beyond the PhD

Researchers prefer to adopt open source and social media technologies that are available in the public domain rather than institutional license-based applications (as with the EndNote, Zotero, Mendeley example, discussed above). First, the social media technologies facilitate networking and community building. Second, researchers prefer to use technologies that will enable them access to resources and their own materials beyond their institution-based research. For example, researchers are setting up blogs and wikis by employing tools such as [Wordpress](#) for blogs and [MoinMoin](#) for wikis, rather than using the wikis and blogs available in the institution's VLE.

Change in social media habits with emerging technologies

We observed that researchers adapt to new tools and develop new ways of communicating. For example, some researchers in the survey mentioned to us that since they started using Twitter, they are not using [RSS aggregators](#) as much as before, as the information they need is available on Twitter. For those who have a blog, they tend to post less than before, since it is easier to share ideas in 140 characters and get immediate feedback than writing blog posts.

Instead of bookmarking with social bookmarking tools like Delicious, researchers are now using curation tools such as [Scoop.it](#). Curation is an act of creating new meaning by combining existing content with new perspective¹⁹. A researcher can choose to be a curator

¹⁸ Research student wiki: Students and academics in the Computing Department at the OU maintain a wiki for research students, which sets out regulations, provides (or links to) resources, and shares tips and tricks.

¹⁹ Steven Rosenbaum's Curation Nation, <http://curationnation.org/> [accessed 16 August 2012]

or he can choose to follow curators. For example, Scott Merrick curates the topic of Virtual Worlds Education from blogs, tweets, videos, etc. and consolidates the various items into an online magazine (please see: www.scoop.it/t/virtual-worlds-education/). So, a virtual world researcher who may not have the time to follow Twitter and other web material for the topic of Virtual Worlds Education, which is very important for their research, could visit Scott's curated website. Also, see www.scoop.it/t/social-media-for-higher-education, a Scoop.it site on 'Social media for higher education'.

Intellectual property concerns

Researchers and supervisors express concern about intellectual property issues with some of the tools used, such as referencing management systems. The majority of researchers and supervisors review the privacy policy and usage statements carefully, or ask someone who does, or speak to somebody in their institution's library. The researchers and supervisors are rightly concerned about preserving the integrity of their research, and the potential for publication.

Concern about the time spent on social media tools

Researchers in our survey expressed concerns about the time it takes to maintain an active presence on social media. The majority of the researchers preferred to keep themselves informed through online newspapers, podcasts, subscriptions to blogs, mailing lists and discussions forums, rather than being actively involved on Twitter or on [Google+](#). They felt that the social media tools, unless for individual use in research, such as subscriptions to blogs, or searching on Twitter via [hashtags](#) (hash-tags can be seen as metadata, describing the content of a tweet), or using Mendeley as a bibliographic reference management system, can be an overhead and a 'waste of time'.

Some researchers commented on how social media can distract from deep reflection while responding to frequent interruptions.

Preference for traditional mailing lists

Researchers and supervisors prefer traditional mailing lists for research-related discussion groups rather than having to move to enterprise networks such as [Yammer](#), social networking platforms such as [Ning](#), discussion forums of the institution's VLE, [LinkedIn](#) groups or [Facebook](#) pages. Even if they join groups on other platforms, such as LinkedIn, they prefer to receive regular emails from the group (daily or weekly digests) or subscribe to the forums in the VLE to receive regular posts from the forums within their email inbox.

One of the participants comments were:

'it [email digests] allows me to easily check, read and save/delete in the course of the day without going anywhere else', or 'I wouldn't be able to keep up the conversations if I had to make time to do it separately'.

An early career researcher mentions how the groups in LinkedIn are 'very busy' and she prefers the traditional mailing lists:

I feel overwhelmed with the discussions in specialist groups on LinkedIn. I much rather prefer the closed traditional mailing lists with less traffic and more useful discussions.

An early career researcher recounts how she was able to link with practitioners in her research area via the mailing lists:

I remember that I attended an event that was announced on area XX on the mailing list; I went to that and met many practitioners in my area...also, the discussions on this mailing list enabled me to see what the practitioners were saying and what problems they were experiencing and which I should perhaps think about in my research...

Maintaining professional and personal boundaries

We found that researchers are conscious about separating their personal and professional lives on social media, less in the postgraduate stage and more at the stage of an early career researcher. Some postgraduate researchers mentioned that although they post photos of family or news about their personal lives on Facebook in which they have professional colleagues as 'friends', they are careful about sharing only those 'fun' aspects that they would do anyway in informal settings with their colleagues. However, early career researchers mentioned declining (or ignoring) requests from professional colleagues on Facebook and instead linking with them through LinkedIn or Academia.edu.

An early career researcher discusses how he was particular about not including professional contacts on Facebook:

I have upset at least one person who is a professional researcher in my field who wanted to be my friend in Facebook but I refused on the grounds that while we had communicated regarding research in the past, and I would be interested to continue to do so, I did not consider him to be a social friend. He was offended by this...

Concerns about files in the cloud²⁰

We observed that even when researchers are using technologies such as Dropbox or box.net for storing and sharing documents with their supervisors and other collaborators, they are concerned about the possible loss of their materials if the service in the cloud failed and was no longer accessible. Researchers mentioned taking weekly backups on more than one device (USB drive, or their main computer, or on university servers) to safeguard the loss of their materials. Supervisors were concerned about the risks of having research data in the cloud, and particularly identifiable data about participants, and the possible security or privacy breaches that could compromise the data.

²⁰ Things you should know about organizing files in the cloud, EDUCAUSE 2011, <http://net.educause.edu/ir/library/pdf/ELI7073.pdf> [accessed 16 August 2012]

A researcher in our survey discusses his privacy concerns about Dropbox:

Privacy is a concern when using Dropbox, so I use it mostly for sharing documents when it would be inconvenient to send by email (e.g. when the file size is large or software code). However, data collected from participants will never be put in Dropbox, we usually keep it in encrypted containers using open-source encryption tools such as TrueCrypt <www.truecrypt.org/> Internally, we do share documents using a shared folder (e.g. a project folder) on a local file server but then access to this folder is a problem when the project members are away and will have to use VPN <virtual private network, http://en.wikipedia.org/wiki/Virtual_private_network> to connect.

2.3 Conclusions

The real key to successful application of technology in research dialogues is fitness-for-purpose. The challenge for researchers and supervisors is to leverage the right social media tools for their purposes. Towards this, this project has conducted empirical research to investigate the social media tools that researchers and supervisors are using and for what purposes. We have also analysed the strengths and weaknesses of individual tools to facilitate research dialogues and support development of research skills. We hope that the scenarios of use and the tools that we have discussed in this handbook will help inform researchers and supervisors in making choices.

Design projects around a problem to solve, not around the tools:

Although hands-on experimentation with tools like Twitter, Facebook, and social network mapping is critical, it's important to remember that the tools are simply a means to an end. ...

Begin by first defining the problem that needs solving, and then identify the tools that can help solve it, not the other way around. Is the effort aimed at sharing information? Mobilizing and engaging people? Getting to scale? Once the goals are clear, then focus on how to accomplish them. What kind of network approach will best support the end goal? What tools should be used? ...

The best design may be made up of the simplest tools: pen and paper for mapping the social network, an e-mail listserv for brainstorming, or an in-person meeting to get people working together and build trust.

http://www.ssireview.org/articles/entry/working_wikily [accessed 16 August 2012]

3 Use of social media tools in research dialogues: results from our survey

Our empirical research has shown that researchers and supervisors are using social media tools for research discourse related to six functions:

1. **Formal dialogues** with team members: these constitute formal supervision or project meetings, and communications between meetings: email, web-based conferencing tools such as [Skype](#), Elluminate²¹ (for group discussions or seminars), [Second Life](#) which is a 3D virtual world, a project wiki (posting regular updates), telephone or conference calls and SMS texts for quick reminders or queries or for delivering news such as “paper accepted”
2. **Informal interactions** with peers, team members and broader research community: [Google chat](#) (similar to what’s up in a social setting), Skype (for quick conversations), [Facebook](#) (for updates), Twitter (for disseminating news), SMS texts (for quick updates or queries), phone conversations, and Second Life
3. **Documentation:** authoring and exchange of documents with team members and for document storage:

For recording and storing research outputs and progress documents in a way that allows an appropriate audit trail and sharing with the team: local storage on desktops, documents emailed to team members when required; [Dropbox](#) (which uses cloud computing to enable users to store and share files and folders), shared folders on the institution’s servers, portable USB drives exchanged at need, wikis (often set up as protected spaces in project teams)

For personal documentation: bibliographic referencing systems²² such as [Mendeley](#), [Zotero](#), [Qiqqa](#), private blogs (for meeting notes, reading notes, records of activities, etc.) or private wiki for creating drafts

4. **Space for reflection:** working with ideas and the process: paper predominates for keeping a personal notebook or research journal, and conversations with peers, either face-to-face or online, are instrumental for reflection. Blogs and wikis (for many, the blog or wiki augments or replaces the research journal); content or document management tools such as [Drupal](#) or [DEVONthink](#) (again used as a form of research journal), diagramming tools such as [OmniGraffle](#)²³, or mind-mapping software (for structuring their thoughts, or mapping concept spaces), notes on copies of papers or annotations on electronic copies, [750words.com](#) to develop the habit of writing regularly, and even “emails to self”
5. **Engaging with the community** at large: a profile on Academia.edu and/or on LinkedIn (connecting posting updates, linking up with Twitter feed), Twitter (posting updates on research developments; sharing short, reflective notes during an event), blogs (for exposing their research thinking and findings to scrutiny and discussion, to recruit

²¹ now called Blackboard Collaborate:

<http://www.blackboard.com/Platforms/Collaborate/Overview.aspx> [accessed 16 August 2012]

²² Ovadia, S. (2011). Managing citations with cost-free tools, Behavioural & Social Sciences Librarian, vol. 30, pp. 107-111.

²³ Also see, User Experience Stencil for Omnigraffle, Visio, Pencil and Keynote:

<http://www.userfocus.co.uk/resources/omnigraffle.html> [accessed 18 August 2012]

participants for research), [SlideShare](#) (for sharing presentation materials from seminars, conferences, other events), [YouTube](#) (for sharing short videos of research methods and findings) and [Scoop.it](#) or [Paper.li](#) for curating content

6. **Keeping informed** about resources, conference news, funding calls: mailing lists, Twitter, following up blogs via RSS feeds, subscribing to podcasts via [iTunesU](#), [Ted Talks](#) for inspiration, YouTube videos, technology sections of online newspapers, groups and pages on Facebook, and discussions groups on LinkedIn (LinkedIn featured more in our conversations with early career researchers and supervisors than in our interviews with postgraduate researchers)

A catalogue of the key technologies identified by the participants in our survey is shown in **Table 2**.

The catalogue of tools presented in Table 2 will be useful to early career researchers, postgraduate researchers, and for supervisors and managers who supervise and manage researchers, and, in general, to academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Table 2: Social media tools for research dialogues

Formal dialogue with supervisors	Informal interactions with peers and supervisors	Document authoring, exchange with supervisors and storage	Space for reflection, working with ideas and the process	Engaging with the community at large	Keeping informed
<ul style="list-style-type: none"> ▪ E-mail (institutional and cloud-based, e.g. GMail, Yahoo) and attachments ▪ Phone, video-conferencing ▪ Skype conferencing tool with Audacity for recording ▪ SMS messages on mobile phones ▪ Google chat for audio/video conferencing ▪ Elluminate or Blackboard Collaborate ▪ vRoom powered by Blackboard Collaborate (free for three users) ▪ Wiki (wiki software: e.g. MediaWiki, Wikispaces) ▪ VLE environment such as Moodle set up for the team/research group ▪ Second Life (avatar-based 3D virtual world) with Audacity ▪ Flash Meeting (for large structured meetings) ▪ Scopia (video-conferencing) 	<ul style="list-style-type: none"> ▪ Skype for chats and short meetings ▪ Instant messaging in GMail chat, SMS messages or brief conversations on mobile phone ▪ Mailing lists ▪ Discussion forums in an institutional or research group's VLE environment such as Moodle ▪ Wiki of a research group or project team (wiki software such as MoinMoin) ▪ Social networking platform (e.g. Ning,) ▪ Facebook ▪ Blogs (blogging software: WordPress) ▪ Twitter (micro-blogging service) ▪ Cloudworks (useful if conducting research in technology-enabled learning) ▪ Second Life (avatar-based 3D virtual world) ▪ Social Learn (learning network) 	<ul style="list-style-type: none"> ▪ E-mail and attachments ▪ Shared folders on university servers ▪ External USB drives ▪ Sharing of files on the Web (e.g. Dropbox, box.net, Carbonite, iCloud, SkyDrive, Google drive) ▪ Wiki (wiki software: e.g. MediaWiki) ▪ Blogs (blogging software: WordPress, Moveable Type) ▪ GoogleDocs ▪ VLE environment such as Moodle ▪ Academic reference management system (e.g. EndNote, Mendeley, Zotero, iPapers, Aigaoi, Papers, citeulike, Qiqqa and SugarSync for synchronising files and folders) ▪ Open Office, Scrivener ▪ Backupify for backups or iDrive ▪ E-portfolio system such as Mahara 	<ul style="list-style-type: none"> ▪ Shared screens in Skype or in Elluminate ▪ Blogs (blogging software: WordPress, Moveable Type) or in a VLE Moodle ▪ Twitter (micro-blogging) ▪ Wiki (wiki software: e.g. MediaWiki) ▪ Project planning (Timeglider, Freedcamp, Basecamp) ▪ To do lists (Evernote, DEVONThink, Teux Deux, TaskPaper, Nozbe) ▪ Setting up meetings (MS-Office calendar, Doodle, Meetomatic) ▪ Reminders in email software ▪ Mind-mapping software (e.g. FreeMind, Mind42, MindNode) ▪ Diagramming software (e.g. Omnigraffle, Visio) ▪ Connecting ideas and arguments (e.g. Cohere Compendium) ▪ Wordle (sense-making through word clouds) ▪ 750words.com to practise writing on a regular basis ▪ FlashVlog (online video diaries) 	<ul style="list-style-type: none"> ▪ Blogs (blogging software: WordPress, Moveable Type, Drupal) ▪ Twitter and Twitpic (microblogging and sharing videos and photos on Twitter) ▪ Wiki (wiki software: e.g. MediaWiki) ▪ Scoop.it and paper.li (curating content) ▪ Academia.edu (professional networking) ▪ LinkedIn (professional networking and group-memberships) ▪ YouTube (to share videos) ▪ Delicious, Diigo (social bookmarking tool) ▪ Slideshare (share presentations, documents and professional videos) or on Prezi ▪ Scribd (sharing documents and presentations) ▪ University repositories for published papers (e.g. Open Research Online: ORO) 	<ul style="list-style-type: none"> ▪ Ted Talks (view talks by experts) ▪ YouTube (view videos) ▪ iTunesU (listen to and view lectures, videos) ▪ Twitter (searching by using hashtag, or following colleagues, or through an account) ▪ Alerts (Zetoc, RSS feeds) or monitoring via Netvibes ▪ Mailing lists ▪ Facebook groups and pages ▪ LinkedIn groups ▪ Slideshare (access presentations, documents and professional videos) or Prezi ▪ Elluminate (view recorded lectures) ▪ Google Reader (check web sites and blogs for new content)

4 Personae of researchers using social media tools

In order to represent the range of social media adoption profiles, we've derived personae²⁴ of researchers²⁵ from the survey data. These personae are distinctive from one another in the way they use social media in their research dialogues. We present some quotes of researchers describing their use of social media in research dialogues. The quotes illustrate that researchers are selective in their choice of tools to support their research activities, and how they adapt their choices and usage depends on the preferences of their supervisors and their own needs/skills.

The profiles of the personae are authentic, but the names have been changed²⁶.

²⁴ Some resources on personae: <http://www.webcredible.co.uk/user-friendly-resources/web-usability/personas.shtml> and <http://www.uxmag.com/articles/personas-the-foundation-of-a-great-user-experience> [accessed 16 August 2012]

²⁵ We have used the term 'researcher' to imply a postgraduate researcher or an early career researcher.

²⁶ The tools mentioned in these profiles are listed in the catalogue in Table 2 in Section 3 where the web-links to the tools are also included.

Joe, the conservative researcher



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Joe discusses about his document sharing and storage:

...emailed Word documents and then comments or tracked changes with supervisors or collaborators is how it is done. Documents are stored on my PC's hard drive, backed up onto USB drives and by way of emails to myself.

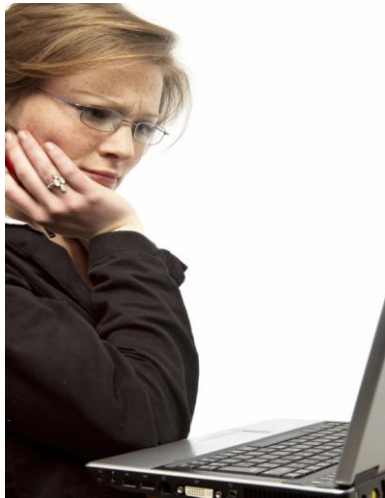
Joe is a part-time postgraduate researcher whose supervisors are based at different locations in the UK, and one of the supervisors travels abroad frequently. The supervision meetings are a combination of monthly telephone conferences and opportunistic, face-to-face meetings in cafes or Joe's office (i.e., Joe's supervisors sometimes travel to see him).

Joe interacts with his supervisors via email and sends fortnightly progress reports. He attends the department's online post-graduate forum sessions on Elluminate. Joe does not have a shared project repository; his project documents are stored on personal storage devices at Joe's home. When required, documents are sent to his supervisors as attachments to emails.

Joe uses a paper journal for reflection.

Joe has encountered social media tools in his discussions with peers but feels that he would rather not participate: he can't see the purpose for his research and does not have the time.

Mary, the cautionary social media user



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Mary discusses her preference for face-to-face meetings and use of a minimal set of technologies to support her research dialogues:

I always prefer doing supervision face-to-face, but if that is not possible I might use the phone or Skype.... for informal updates or reminders I use email or Skype...for document sharing I tend to use email or Dropbox.... For storing documents, I use Dropbox and the university's servers.

Mary discusses that she prefers institution-provided tools for document management:

Endnote (although a bit buggy and in my case slow, even on a relatively new and fast machine) is essential and that is what the university told me is their preference too. I don't trust online services, either to be around in a few years time or it is yet another proprietary format to have to unpick and load into the next proprietary formatted resource; or they might just disappear with my research on them

Mary is a full-time postgraduate researcher. Mary uses Facebook to keep in touch with families and friends but is concerned about the privacy policies. She regularly checks the privacy policies on Facebook. She does not share her movements or her geographical location on Facebook.

Mary stores documents on Dropbox to share with her supervisors but all the research data is on password protected project space on the university's servers. When carrying data while on the move, she uses TrueCrypt (www.Truecrypt.org/) to encrypt the folders that have the data on her laptop's hard disk.

Mary does not use bibliographic reference management systems in the cloud such as Mendeley and Zotero. She uses university-provided and supported EndNote instead.

Mary does not blog and does not have a Twitter account.

Mary is skeptical about being 'too exposed' in social media and conducts a regular self-audit to monitor her online presence.

Annie, the adaptive social media user



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Annie relates her experiences of having formal dialogues with supervisors in Second Life:

...meetings with the supervisory team can be very beneficial inside Second Life especially for synchronous discussion of displayed data findings, images, charts, graphs, videos, audio files or even models and simulations etc.

One advantage of Second Life is that it removes the stress from meetings as the facial expressions are missing. Sometimes face-to-face communications can be very formal – especially when the cultural norms advocate respect but in Second Life such barriers are removed and one can be more casual in one's communications, which may not even be possible in conferencing systems.

The conversations are more relaxed and friendly in Second Life as compared to face-to-face and other conferencing tools.

Annie is a part-time postgraduate researcher. She lives in Germany and is unable to have frequent face-to-face meetings with her supervisors who are based in the UK. She has integrated social media tools in her research discourse and adapted, based on the guidance from her supervisors. She interacts with the supervision team via email and meets her lead supervisor in Second Life, a 3D virtual world, every fortnight. Her lead supervisor conducts research in 3D virtual worlds, so when her supervisor suggested Second Life for regular meetings, she readily adopted Second Life.

Annie interacts with her fellow postgraduate researchers via the discussion forum in the university's Virtual Learning Environment (VLE).

Annie didn't have a shared online repository of documents when she first started her PhD and used to send documents to the supervision team via email. Her supervision team has set up a shared folder on box.net for her project so that she could share large files via box.net rather than sending them as attachments to emails.

Annie writes her personal reflections in Word, and she includes extracts of her reflective accounts in her six-monthly progress reports.

Robin, the 'not-so-social' user of social media:



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Robin on interacting with his supervisors and the materials he brings to the supervision meetings:

In terms of sharing with my supervisors it's mainly email or face-to-face. Sometimes we Skype when it is not possible to meet in person. Sometimes I bring a document to a face-to-face meeting that illustrates my current state of thinking, or a plan to be discussed, etc. These documents can be mind maps, tables in Excel, sketches on paper (less frequently as I use the iPad more frequently) and so on. While discussing the document we then often amend the document together. It can then sometimes be difficult to track the changes. After the meeting I sometimes try to compare the pre and post versions, to recap what we changed.

Robin recounts his use of the tools for managing and storing documents:

I use dropbox and an external hard drive to manage files, and do most of my initial writing and organisation of papers in a Pbworks hosted wiki.

Using the tool Zotero in bibliographic reference management:

I am using Zotero (it's a free Firefox plugin) [for reference management], to which I feed references automatically while searching through Google Scholar. Always better than creating refs <references> by hand!

Robin is a full-time postgraduate researcher. Robin, in addition to face-to-face meetings, has Skype meetings with his supervisors and keeps in touch via email. He uses RSS feeds and Google Reader to keep himself updated with online articles and news stories related to his research. Robin adopted Zotero as his bibliographic reference manager after another researcher recommended it to him but has not made his profile public on Zotero. Robin uses DEVONThink to keep extensive notes and (as a research journal). He reflects by regularly writing in his blog but only shares the blog with his supervision team. Robin does not have an account on Twitter but keeps track of the dialogues by using the hashtag of the event/discussion that he wants to follow.

Mark, the social media user with a dichotomy between professional and personal profiles



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Mark discusses his use of technologies in research dialogues:

I use email to make initial contact and to arrange a face-to-face meeting. I prefer to have face-to-face meetings than use technology when discussing my work. Again I use email when talking to other people for informal stuff related to my research project, if not then I resort to Facebook and mobile phone. I have two accounts on Facebook to keep my professional connections separate from family and friends.

I store documents on my desktop and on my USB though I should probably back my work up more often!! I usually write my reflections in a notebook and leave it at that rather than writing formally; I find the notebook more personal rather than writing a blog.

Mark is an early career researcher. Mark is very conscious of keeping his professional and personal lives separate. He has two Facebook accounts one for his family and friends, and another one to connect with his colleagues and to keep in touch with events and groups that relate to his research.

Mark is very particular with whom he connects on LinkedIn and restricts the connections to his professional contacts rather than people he knows through his personal associations. He sends a polite email or message via LinkedIn if he feels that it may not be proper to connect on LinkedIn and suggests a connection via Facebook instead.

Mark does not use Twitter as he feels that people tend to discuss a lot about themselves and their personal activities on Twitter, which for Mark, gets in the way of professional dialogues.

Sammy, the social media 'expert' user



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Sammy recounts his experiences of using Twitter during his PhD:

Twitter can support postgraduate researchers by providing another stream of information, which the postgraduate researchers can filter. It can have similar benefits as joining a mailing list, or getting an RSS feed from blogs and journals.

There is another a very useful hashtag called #phdchat which was created by a group of postgraduate researchers to organise a discussion on Twitter. They would meet once a week for an hour to discuss general PhD-related topics. They also have a wiki now:

<http://phdchat.pbworks.com/w/page/33280234/PhD%20Chat> At the end of the discussion sessions, there would always be very useful links to articles and blogs. So Twitter can also be used as a sort of reading group or support group for postgraduate researchers.

Sammy is an early career researcher. Sammy maintains a shared folder in Dropbox to share documents with his supervisors. With peers, he interacts via Ning (which he has set up), mailing lists, and the Elluminate seminars. He uses Zotero for managing literature sources. He uses Twitter to send updates and track stories and discussions in his research area by searching via hashtags. He also uses hashtags corresponding to topics of interest to share information on Twitter with the community.

Sammy has started blogging about his research mainly as a way to follow up on meetings with other researchers at conferences. Sammy has maintained a personal blog for many years as a way to keep in touch with his family and friends. Sammy uses Delicious for social bookmarking and feels that social bookmarking has made a significant impact on his research, in terms of finding about other researchers in his area and their bookmarks.

Sammy has profiles on both Academia.edu and LinkedIn but prefers Academia.edu for research collaborations and for keeping in touch with other researchers. Sammy is confident of the choices of social media he has made as he generally conducts a lot of research up-front to check what suits his needs.

5 Personae of supervisors using social media tools

In order to represent the range of social media adoption profiles, we've derived personae²⁷ of supervisors using the survey data. These personae are distinctive from one another in the way they use social media in their research dialogues. We present some representative supervisor's quotes with each of the personae describing their use of social media in research dialogues.

The profiles of the personae are authentic, but the names have been changed²⁸.

²⁷ Some resources on personae: <http://www.webcredible.co.uk/user-friendly-resources/web-usability/personae.shtml> and <http://www.uxmag.com/articles/personae-the-foundation-of-a-great-user-experience> [accessed 16 August 2012]

²⁸ The tools mentioned in these profiles are listed in the catalogue in Table 2 of Section 3.

Robert, the email supervisor



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Robert talks about his experiences of document sharing and storage:

I don't have a shared space with my postgraduate researchers but when we have to share documents for a paper that we are writing, we do it via the project space on the server or we do it via email...I let postgraduate researchers store other documents and take backups at their end, as it can get messy having a shared space for everything and with various versions of documents...

Robert uses email communications and the phone, in addition to face-to-face meetings.

Researchers in his projects have tried to introduce Google Docs for sharing documents, or informed him about the blogs that they maintain to discuss their research so that he can keep a track on their progress and comment on the blogs. However, Robert prefers that all the information is sent to him by email, and that any large documents which can't be sent as attachments to emails, be placed on the project's server-space within the university. When not on campus, he uses the Virtual Private Network (VPN) to access university's servers.

Robert uses telephone and telephone conferencing for regular updates and for addressing queries. He has not taken up Skype or any other web conferencing tool as yet.

Martha, the social media reluctant supervisor



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Martha discusses her interactions with part-time distance-education postgraduate researchers and her use of technologies for reminders and To-do lists:

I use Skype with the part-timers; ... very occasionally using sharing of screens in Skype if looking at the same part of a document. I use shared Dropbox folders where postgraduate researchers put their drafts papers, progress reports etc. I use my outlook tasks functionality for reminders or my email inbox as a To-do list, plus EverNote occasionally...

Martha expresses her concerns about the security of research data:

I am happy with the postgraduate researchers to share documents with us [the supervision team] via box.net or Dropbox, but I insist that they store research data which has security or data protection concerns on university servers in password protected folders especially setup for the project²⁹.

Martha prefers email communications in between face-to-face meetings.

Martha has moved to Dropbox recently for accessing and sharing documents. She has realised that to write joint proposals with colleagues in other institutions or in collaborating with the external supervisors of her postgraduate researchers, she needs a space in the cloud for sharing documents.

However, Martha prefers not to participate in the shared bibliographic management system, Zotero which her research postgraduate researchers have set up.

²⁹ 'Sorry, Dropbox, I still don't trust you', <http://www.zdnet.com/blog/bott/sorry-dropbox-i-still-dont-trust-you/4173>; also see 'Dropbox confirms security glitch – no password required' http://news.cnet.com/8301-31921_3-20072755-281/dropbox-confirms-security-glitch-no-password-required/ [accessed 16 August 2012]

Kevin, the social media adaptive supervisor



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Kevin discusses how he has been influenced by his postgraduate researchers to adopt new tools but has concerns about tools 'disappearing':

I have recently started using Google+. It was suggested by one of my part-time MPhil researchers for supervision meetings because during the week, he can't use Skype from his workplace. However, I do worry about tools disappearing, for example, Googlewave that we used is now gone...

Kevin supervises a number of part-time postgraduate researchers who prefer using a variety of ways to keep in touch with him depending upon their choices/contexts. For example, some organisations don't allow Skype or Second Life which could be difficult for part-time postgraduate researchers who would like to contact Kevin during office hours. Kevin has been very adaptive and has adopted technologies over the years (Skype, Google+, Elluminate, or Second Life) depending upon the preferences of his postgraduate researchers.

Kevin has also shared Dropbox folders with his individual postgraduate researchers. He does not insist that his postgraduate researchers share all the project files or their entire bibliographies with him. His postgraduate researchers give him access on a needs basis (for example, when they are writing a paper together).

Kevin reads the blogs of his postgraduate researchers but he, himself, does not follow Twitter or use SlideShare and other social networking tools to disseminate his research. Kevin has a LinkedIn profile but when interacting with potential collaborators, Kevin prefers to point people to his university's website, which he keeps up-to-date.

Rosa, the social media passionate supervisor



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Rosa discusses having shared bibliographic reference management systems with her team of researchers:

I encourage my team members to share Zotero bibliography with me .. so here you see [showing them to the us], I have all these shared folders for different projects but the space fills up pretty fast and so the space in Zotero can be a constraint... we have Word plugins, so the references can be moved into papers that we write. It wasn't easy to share references with EndNote....I looked at Mendeley but I was already using Zotero and had got used to it...I had Citeulike before but it wasn't easy to share with it...

Rosa discusses about SharePoint as a collaborative project space:

We use SharePoint³⁰ for a range of file sharing activities. I have not personally used it for postgrad supervision but I am aware that others have, particularly where there are small research groups. In our project, that involves research collaborators from several countries, we use SharePoint for discussions, sharing documents, etc.

Rosa blogs regularly on her research. She also tweets and uses Facebook to keep in touch with family, friends, and colleagues who have become 'friends' over the years. Rosa has set up a wiki of her research group, allowing all her researchers and collaborators to contribute to the wiki.

Rosa has also set up a group on LinkedIn and has invited her research team and collaborators in other institutions to contribute to this group. She uses SlideShare to post her presentations. She has posted videos of her research projects on YouTube. Even if she does not regularly contribute, she has a presence in Google+. Rosa uses her iPad in meetings and when travelling. She uses various Apps on her iPad such as EverNote for note taking and reminders.

³⁰ Microsoft SharePoint <http://sharepoint.microsoft.com/en-us/Pages/default.aspx> [accessed 16 August 2012]

5.1 Scenarios of use of technologies by supervisors

From our data, we have selected five scenarios of supervisors using social media tools to show the variety of tools that are being used in different contexts. The scenarios are authentic, but the names have been changed³¹.

Supporting a part-time non-resident postgraduate researcher

Leah's part-time postgraduate researcher is based in Malta and visits the UK only once in six months to meet with her supervisors. Leah and other supervisors have set up a private group on Facebook that the postgraduate researcher and supervisors have access to. Leah says: "We use Facebook for communication and networking. We also keep in touch by fortnightly phone calls. However issues that have any data protection implications are dealt with in her university email".

Supporting a full-time postgraduate researcher who has two external supervisors

Sheila's full-time postgraduate researcher has four supervisors, including two external supervisors. Although the team aim to meet once in a month on the university's campus, it is difficult to get all four supervisors together. The team is increasingly using Skype conference calls for supervision meetings. Sheila meets her postgraduate researcher in Second Life for brief one-to-one catch-up meetings. Box.net is used to share documents amongst the team members and a dedicated space on the university's servers has been set up as the project's repository.

Collaborating with a part-time postgraduate researcher

Rasika uses Google Docs to share documents with her groups of postgraduate researchers. The supervision meetings are carried out using Skype. However, she has sometimes faced Internet connectivity problems while speaking on Skype with her international postgraduate researchers.

Supporting full-time campus-based postgraduate researchers

Samir and his colleagues use email for advisory communications, informal updates and reminders. They use Elluminate for supervision meetings and Google Docs for sharing documents. Samir employs Mendeley for his personal collection of research papers for document storage and uses Aigaion for sharing documents with postgraduate researchers. Samir says: "Aigaion has better tagging and categorization functions, allows sharing documents with guest access, and since it is hosted on a university server has a higher storage capacity than Mendeley."

Supporting a non-resident postgraduate researcher

Janet's postgraduate researcher lives in Spain with whom she is unable to have frequent face-to-face sessions. She meets with her postgraduate researcher in Second Life for monthly supervision meetings. All other communications and sharing of documents are on email.

³¹ The tools mentioned in these profiles are listed in the catalogue in Table 2 of Section 3 where the web-links to the respective websites are also included.

6 Social media strategy for research dialogues

A social media strategy for research dialogues is about achieving communications, business or organisational goals. For example, informing the community about an innovation or invention, or raising the profile the project team, a research group, or an institution.

The guidance on social media strategy in this section will be useful to researchers (postgraduate researchers or early career researchers), supervisors and managers who supervise and manage researchers, and, in general, to academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

6.1 Creating a social media strategy

In developing a social media strategy, a **social strategy** and a **digital strategy** need to be considered.

Developing a social strategy implies deciding with whom, what, how and when you would communicate to share, learn, and create and enhance relationships with others. A digital strategy implies choosing the technologies to achieve the social strategy.

A checklist that can help in thinking about the social and digital strategies:

Are your goals professional, personal, or both?

A postgraduate researcher's use of blogs for dialogues with her supervisor

I use a blog for supervisory dialogues with some supplementary phone calls, and a couple of face-to-face meetings. My blog is open, although my supervisor is the only one who really contributes (only one other has commented). The main advantage I'm finding at present is that I'm trying to make regular posts, to keep myself motivated and organised to some extent. Leaving a gap in the blog implies little progress.

Is your intended audience private (a set of friends, family or immediate colleagues) or public (a group or the entire world)?

What would you like to communicate? Discussing research participants could risk their privacy and anonymity, or discussing a project which is being carried out with an industrial partner may bring about concerns about intellectual property rights?

How big do you want your presence to be?

Social networking poses tricky questions of etiquette. Does one need to accept a supervisor's Facebook request? Should work colleagues be your [Facebook](#) friends? If so, how do you ensure that your non-work friends don't post pictures or comments that could hurt your professional identity? How do you decline requests to connect? Should your status updates be toned down or censored?

A message on one of the Facebook pages of an academic is as follows:

I will be limiting my Facebook friends to close personal friends and family. If I know you professionally, please find me on LinkedIn, or on Twitter <....>, or on Google+

How often would you like to connect? Are you expecting to give monthly updates or more frequent than that?

Continuity is important, so you or the research group would need time to sustain the initiative. For example, a blog might require an hour or so every week for reading comments and posting responses. So would setting up a presence as a research group be better so that maintaining and running the initiative can be shared amongst the team members?

Twitter requires less time per interaction, but the frequency must be high to establish a meaningful presence.

What resources do you have?

Can you administer the initiative yourself? Or do you need technical support? Or do you need advice from the Library about copyrights if you are adopting a bibliographic reference management system in the public domain? Will the software be allowed through the firewalls of the institution?

In Table 3, we present a guiding framework based on Dutta (2010)³² on how researchers and supervisors can choose tools for the two spheres of activity using social software – personal and professional and against the target audience – private and public.

Dutta (2010) outlines **three goals** of creating a social media strategy.

Build a personal **brand**

Engage with others

Learn from instant information

Table 3: Creating a social media strategy

Preferred online presence	Goals	Examples of social software tools
Personal and private (with family and friends)	Brand: showing commitment to personal relationships Engage: strengthen your ties Learn: keep abreast of the changes in your social network	Facebook, personal blog, Flickr (photo-sharing), Pinterest ³³
Professional and private (with work)	Brand: enhancing image at work	Corporate platforms such as institutional virtual learning environment (VLE),

³² Dutta, S. (2010). What's your personal social media strategy? Harvard Business Review, vol. 88, no. 11, pp. 127-130.

³³ Pinterest (<http://pinterest.com/>) is a pinboard-styled social photo sharing website. The service allows users to create and manage theme-based image collections.

Preferred online presence	Goals	Examples of social software tools
colleagues)	Engage: collaborate, enhance effectiveness and efficiency Learn: leverage colleagues' inputs	discussions forums, blogs and wikis within the institutional firewalls or password protected
Personal and public (with the community at large)	Brand: become known for your ideas Engage: finding outlets for developing personal interests Learn: leverage others' ideas and viewpoints	Personal blog, YouTube, Flickr, personal account on Twitter, community forums related to personal interests
Professional and public (professional peers)	Brand: build peer recognition Engage: find new opportunities Learn: boost knowledge and develop yourself	LinkedIn, professional account on Twitter and research area-specific groups and communities on Facebook ³⁴ , Mendeley, curation via Scoop.it, SlideShare

A postgraduate researcher who does not use social media tools to directly support her research but uses Facebook for informal interactions with peers:

I do not tend to use social networking tools to directly support research, though I do maintain contact with past and current colleagues using Facebook. I also have LinkedIn and Google+ accounts, but they are dormant.

Is there a return on investment (ROI) for social media?

The success of your social media strategy will be determined in the context of your goals and what you were hoping to achieve. Only when the goals are clear, can you begin to calculate social media ROI. Some of the quantitative measures for monitoring the influence of your online presence are: connections on LinkedIn, followers on Twitter, friends on [Facebook](#), comments on the blog could be useful metrics, or you could use social media monitoring tools such as [Google alerts](#) and [TweetDeck](#) to obtain metrics that will give you an idea of whether your social media networks are growing or stagnating?

It would also be useful to keep a track of the quality too: how many useful connections you have made each month, the number of ideas that you have developed as a result of online communications through social media, did a tweet on Twitter lead to an invitation to speak at a professional conference, did one of your connections offer a consultancy project, or did you become aware of a funding opportunity that you wouldn't have if not for a discussion on a [LinkedIn](#) group?

³⁴ Many conferences set up event pages on Facebook (e.g. <http://www.facebook.com/events/24432422277401/>), or there are special interest research groups on Facebook, or there are journal pages on Facebook (<http://www.facebook.com/pages/Journal-of-Virtual-Worlds-Research/219823784730245>), URLs accessed on 16 August 2012.

A postgraduate researcher discusses the advantages of Twitter:

I was able to link up with Cognitive Science researchers through my Twitter account; I hadn't known about their work earlier. I have also recruited participants for my study by asking for help on Twitter or in my blog posts.

An academic's positive experiences with LinkedIn groups:

I have discovered resources, heard about events and have come across other researchers in my area through the LinkedIn groups

An early career researcher reflects on his experiences with Twitter during PhD

I think Twitter has pointed me to some articles, which I may not have found on my own. It has a similar effect as talking to people and attending talks. You will get exposed to different ideas, which you can then follow-up on.

An early career researcher reflects on her use of blog, how the usage of her blog has evolved over time and how she does not have a social media strategy but is increasingly conscious of the significance of digital scholarship

The blog has evolved over time; I originally set it up because of a Masters module on multimedia that I used to teach on. I use it these days for linking to papers I've published and publishing notes that I've written but that never made it into a form that was more formally publishable (and in some cases were never really intended to). It also helps me to get a sense of technologies and services that are around (e.g. through the various widgets and so on that Wordpress make available). I suppose I've recently begun to think that the digital side of scholarship is becoming more significant and that I ought to take it a bit more seriously, but to claim I had a strategy would be an overstatement.

An early career researcher discusses his use of Twitter for dissemination of project news and updates

Twitter – I use it to follow colleagues and people I find interesting and people I've worked with. I've used it to disseminate <project-name> news and events; more of those people use Twitter than seems to be the case for <project-name>. A couple of times people have contacted me that way asking about things I've done.

A postgraduate researcher reflects on the use of Twitter in a conference:

I find them [Twitter] exclusionary and a platform for which people can "pontificate" and demonstrate an "in-crowd" mentality. As an anecdote one conference I attended last year included a discussion forum where questions were posted to the guests via Twitter. This meant anyone who did not have a Twitter account or a laptop/ipad/3G phone on them felt excluded from contributing and there were a few grumbles about it afterwards.

6.2 Resources

Boost your career with social media: tips for the uninitiated,
<http://blogs.hbr.org/hmu/2011/12/boost-your-career-with-social.html> [accessed 16 August 2012]

I'm an academic and desperately need an online presence, where do I start?,
<http://blogs.lse.ac.uk/impactofsocialsciences/2012/08/10/im-an-academic-and-desperately-need-an-online-presence-where-do-i-start/#more-733> [accessed 16 August 2012]

Wilson, H.J., Guinan, P.J., Salvatore, P. and Weinberg, B. D. (2011) What 's Your Social Media Strategy? Harvard Business Review, pp. 23-26.

7 Tips for social networking for research dialogues

In this section, eleven tips for social networking for research dialogues are presented in the form of a checklist.

The tips in this section will be useful to researchers (postgraduate researchers or early career researchers), supervisors and managers who supervise and manage researchers, and, in general, to academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Create and maintain a consistent professional profile

Research interests and expertise should be reflected consistently across different tools such as on [Twitter](#), in a blog, or on curation tools such as [Scoop.it](#), or [Paper.li](#), or in a professional profile on [Facebook](#). A consistent and focused profile not only helps you to identify your audience and make targeted contributions but it also helps to project yourself as an expert or as somebody who has actively conducted research in one or more key areas in your research domain.

A postgraduate researcher discusses about her use of Academia.edu:

I use [Academia.edu](#) in order to have a professional profile, bio and bibliography online that I can refer colleagues to when they are interested. The URL to my [Academia.edu](#) profile is on my business cards. I find it more convenient to maintain than a personal homepage, for technical reasons, i.e. does not require html, ftp, etc.

Choose 'few' tools to do 'more'

Having a presence on too many tools can cause fragmentation of the content and wastes time.

A postgraduate researcher discusses the use of his blog for communicating with his audience rather than the personal website:

I [have] pretty much stopped updating my personal website... ..have started using blogger instead ...blogger is more convenient to use, I can have several blogs for slightly different purposes (one for my PhD project, one to document older personal projects, one for my research group, etc.). Also, blogger allows people to add comments. I like this feature as it gets me in touch with my audience, both ways, and people can discuss my stuff. My homepage did not have that feature.

Conduct regular evaluations of the tools that you use

It would be useful to conduct weekly evaluations: for example, how many new connections have you made through Twitter? What was it that you learned this week that you could have missed if you were not on Twitter? What were you hoping to achieve from Twitter? Also,

remember that it takes time for effects to come through however regular stocktaking helps to formulate strategies for effective use of the technologies, or to leave them altogether.

If a particular tool is not providing value, don't hesitate to give it up

Not every technology will work the same for everybody. Therefore, if something does not work for you, provide value or has a high cost-to-benefit ratio, then it would be a good idea to give up the technology.

A postgraduate researcher discusses how he gave up the use of wiki that was not providing value:

...for a while I used a wiki that was shared between me and my supervisors to store and share our supervision meeting minutes. I stopped doing this because the usability of that particular wiki wasn't that great and it turned out there wasn't much need for my supervisors to recap and/or contribute to the minutes. Now I share supervision meeting minutes by sending my supervisors word documents by email. I archive the documents in a private folder on dropbox, along with all my other research stuff. I recently bought 50GB of storage space on dropbox, so that I can have everything in one place and accessible and backed up automatically without having to bother with external hard disks etc.

Keep your purpose and audience in mind

If you set up an account, say on [Mendeley](#), is it for your purposes alone as a reference manager? Or are you planning to use it as venue for interacting with others? Are you planning to use it as a way to publicise your research interests and expertise?

A postgraduate researcher discusses his attitude to blogging:

I am not a very active blogger and haven't started with the very socially interactive sides of blogging, e.g. connecting my blog to other people's blogs. I guess my personal attitude to blogging is still kind of web1.0-ish... I see the main purpose in having the information out there, ready to be found by whoever is interested... perhaps this attitude will change with increasing use... who knows.....

Take care not to overload your followers

If it is your professional Twitter account, for example, then your followers will be expecting messages/insights from you that relate to your research. So don't overload them with personal events and messages. With professional news also, be selective in your updates. Not everything that is of interest to you would be of interest to your followers; post insights/news/links that would trigger discussions in your research area.

Keep yourself aware of intellectual property rights, copyright issues and other legal aspects associated with using social software tools

Web2Rights (www.web2rights.org.uk/) is a JISC-funded initiative and has a number of resources (for example, web2rights.org.uk/documents.html) that are useful to reflect on. The

resources provide guidance about intellectual property rights (IPRs) and other legal issues that may arise when using social software. For copyrights, the following site could be useful: www.jisclegal.ac.uk/; also see <http://tinyurl.com/8y5x967>

Consider setting up two accounts to separate personal and professional profiles and updates

Some of the participants in our research mentioned setting up two accounts on social networking sites: for example, on Twitter or on Facebook. This might help to maintain the boundaries between professional and personal.

A supervisor discusses about her leaving Facebook:

I deactivated my Facebook account a year ago as I had both my personal friends and colleagues as 'friends'... it was not right, it made me uncomfortable, it was worrying as my perceptions towards some of my colleagues were changing based on what I was reading about them and their updates in Facebook....

Schedule time for social media

Keeping up with the news is crucial, and maintaining a social media profile is important for professional purposes. But do it wisely. Make it something you schedule time for. Once it's a scheduled activity like anything else, it doesn't become a task that takes up your entire day.

You can make use of social media content through subscriptions or through searches

You can make use of social media content as a 'lurker' in case you don't have the time or inclination to get fully involved in contributing and participating. You can subscribe to blogs that you are interested in via RSS feeds, or subscribe to podcasts via iTunes, or search via hashtags (hashtags can be seen as metadata, describing the content of a tweet) on Twitter.

A postgraduate researcher discusses how he reads blogs and visits online communities to learn about people's attitudes and perceptions related to topics of his research:

Social media does not have much impact on my work – there's some rich (and often wacky) data on the blogs, for example, but I don't go much further than that for work. If you want to find out what women think of vaccinating their children, the blogs of mums net (or what ever it is called) and suchlike, is a good place to get a feel for the subject at least, and would even provide data for more robust analyses.

An early career researcher reflects on his experiences with Twitter during his PhD:

Twitter was also very good to follow conferences. There are always a few people at conferences now who will tweet about talks. You can then get names of papers and authors from them.

Remember that social media is not the only form of communication

Not all colleagues who might be interested in your research will be using social software tools. Therefore, consider engaging with such colleagues through traditional mechanisms such as a newsletter (either a downloadable file from the website or by sending the newsletter by post) or a post-card style project advertising materials for distributing at conferences and other events, etc.

Views of two researchers about not being led by technology but to lead it:

Amichai-Hamburger³⁵ says that being unplugged at least one day a week “gives you a chance to be with those you care about.” No less important: it changes the flow of life and provides perspective about what’s really important. “It reminds us that we have to lead technology and not be led by it. It gives us space to think.”

While electronic communications can be highly efficient, they should not be relied on too heavily. In the article³⁶, **Jonathan Grudin, a researcher at Microsoft** says: “you have to be aware this [social media] is just a projected persona, ...it [social media and online communications] may not be getting across some things that are important.”

A postgraduate researcher discusses how researchers might be taking up technologies for fear of being left out:

I think there is a bit of a tendency for people to leap on technology and use it for the sake of it, sometimes for fear of "missing out" on something or for a way of profile building. My personal approach is to use what I have found useful and keep my fingers crossed I am vaguely up to date on what is going on!

7.1 Resources

7 ways to write attention-grabbing titles for social media content,
<http://aquifermedia.com/2011/04/21/7-ways-to-write-attention-grabbing-titles-for-social-media-content-2/> [accessed 16 August 2012]

How to Twitter and Facebook and still get things done,
<http://paper.li/PhD2Published/1308225917> [accessed 16 August 2012]

Using social media for research and researcher development (SlideShare presentation),
<http://www.slideshare.net/sarahlouq/using-social-media-for-research-researcher-development-11885351> [accessed 16 August 2012]

³⁵ Greengard, S. (2011). Living in a digital; world. Communications of the ACM, 54(10), pp. 17-19. Also, see Amichai-Hamburger, Y. and Hayat, Z. (2011). The impact of the Internet on the social lives of users: A representative sample, Computers in Human Behavior, vol. 27, no. 1.

³⁶ Palmer, M., Social networks bring speed and challenge to companies, FT.com (Financial Times online), December 8, 2011.

Virtual Research Networks: Towards Research 2.0 (SlideShare presentation),
<http://www.slideshare.net/digicmb/virtual-research-networks-towards-research-20> [accessed
16 August 2012]

8 Digital professionalism in research dialogues

Conversations which were once private between a finite number of people are now in a permanent form in the social media space. Even if the user deletes their account or profile they have no way of knowing how many people have downloaded it. The rising use and popularity of social media has significantly affected how research dialogues are conducted. For an individual researcher or supervisor, there is an issue of digital reputation: electronic information is potentially permanent and searchable, making it possible that some detail that one may consider out-dated or peripheral is having more effect on their image than they would like, simply because it is easy to find.

In this section, we discuss guidelines for digital professionalism.

The guidelines in this section, although written for researchers (postgraduate researchers or early career researchers), will also be useful for supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Professionalism, appropriateness for public consumption, and individual or institutional representation in digital media content, are just some of the salient issues that arise when considering the ramifications of digital behaviour and its reflection on individuals and their institutions or projects, or even funding bodies. It is, therefore, important that researchers and their supervisors or project leads familiarise themselves with the advantages of social software but also the potential negative effects of its misuse. It is not only that other individuals and institutions could make judgments based on online interactions, but there could also be legal ramifications, such as copyright violations or breach of intellectual property rights.

E-professionalism or digital professionalism is defined as the attitudes and behaviours reflecting traditional professionalism paradigms that are manifested through digital media.

8.1 Guidelines for digital professionalism

Keep online profile(s) accurate and up to date

Establish and sustain an online professional presence that befits your responsibilities while representing your interests.

Keep it authentic (honest)

It is important to make sure that your online profile does not contradict your activities in the real world and that your messages are authentic.

Manage access to different parts of your profile

Most, if not all, social networking sites have multiple levels of privacy. It is important to understand the privacy settings and to implement the maximum level of privacy available³⁷.

³⁷ Privacy management on social media sites, <http://pewresearch.org/pubs/2201/social-media-social-networking-sites-unfriending-privacy-settings-untagging-photographs>, Pew Research Centre Publications [accessed 16 August 2012].

For example, you could choose to make the professional dimensions of your profile more public and the personal dimensions more private.

Settings in a technology can, however, change without prior notification (e.g. Facebook changes the privacy settings often). Therefore, check the settings from time to time.

Maintain professional boundaries

Refrain from online friendships that may blur personal and professional boundaries. Consider developing “dual citizenship” online with separate professional (public) and personal (private) networking profiles.

Monitor your online reputation

Conduct periodic Internet searches about yourself (self-audits) to monitor your online presence and to make an attempt to correct any misinformation presented online.

Reflect on how your actions will reflect on your profession and institution

It is important to communicate with restraint online because what you say may be reflected on others and your institution.

Play by the rules

Follow the terms of use of the social platform you are using.

Check if there are institutional policies. It is important to protect your and your institution's digital reputation, and to follow the institutional policies of the department and institution before posting material with institutional affiliation.

Be aware of the permanence of online content

Anything said face-to-face is lost when the memory of that encounter is erased over time. However, once the information is posted online, it has permanence, and one has little control over its interpretation or replication, and it may even have legal ramifications.

Remember your audience (intended or unintended)

Post your updates and other details keeping in mind that people will view postings through the lens of their experience and may make judgments about you, your institution, or your research group because of these online interactions. Do not make anything public that you would not be comfortable defending as professionally appropriate in a court of law.

Maintaining privacy of research participants

Care should be taken not to discuss the research or to post identifiable vignettes about participants in a way that the privacy/anonymity of the participants is compromised.

Timeliness is the key

People who use Twitter, Facebook, or another social channel regard timeliness in response as far more important than getting a polished answer. "You've got to be in it to win it. Don't create a profile on LinkedIn and let it atrophy...The smart people are using the information

that crosses their screen every day to reach out to people and to recognize windows of opportunity while they are open, or even before they open."³⁸

A postgraduate researcher who feels that she has been able to achieve a balance in her use of Facebook:

Facebook is very good for keeping in touch and for keeping things light – I make it a policy not to filter any postings, but instead to make sure that anything I do post can be shared with all of my Facebook friends, whether they are primarily professional or research colleagues, family or friends.

8.2 Resources

Baer, W. & Schwartz, A.C. (2011). Teaching professionalism in the digital age on the psychiatric consultation-liaison service. *Psychosomatics*, 52(4), pp.303-9. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/21777712> [accessed 16 August 2012]

Cain, J. and Romanelli, F. (2009). E-professionalism: a new paradigm for a digital age. *Currents in Pharmacy Teaching and Learning*, vol. 1, no. 2, pp. 66-70.

Digital professionalism (several links are there on this page; please scroll almost half way through), <http://www.scotlandscolleges.ac.uk/sub-net/subject-networks/illuminating-practice.html> [accessed 16 August 2012]

Digital professionalism: a barrier to open sharing? New competencies, or more of the same, <http://www.medev.ac.uk/blog/suzannes-blog/2011/jun/21/slides-for-todays-uhmlg11-presentation/> [accessed 16 August 2012]

Dutta, S. (2010). What's your personal social media strategy? *Harvard Business Review*, vol. 88, no. 11, pp. 127-130.

Ellaway, R. (2010). eMedical Teacher, *Medical Teacher*, vol. 32, no. 8, pp. 705-707.

Farnan, J.M., Higa, J. T., Paro, J. A. M., Reddy, S. T., Humphrey, H. J. and Arora, V.M. (2010). Training Physicians in the Digital Age: Use of Digital Media Among Medical Trainees and Views on Professional Responsibility and Regulation. *AJOB Primary Research*, vol. 1, no.1, pp.3-10. Available at: <http://www.tandfonline.com/doi/abs/10.1080/21507711003697527> [accessed 16 August 2012]

³⁸ Uzelac, E. (2011). Mastering Social Media, *Research Magazine*, pp. 45-47

Greysen, S.R., Kind, T. & Chretien, K.C. (2010). Online professionalism and the mirror of social media. *Journal of general internal medicine*, vol. 25, no.11, pp.1227-1229. Available at:

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2947638&tool=pmcentrez&rendertype=abstract> [accessed 16 August 2012]

Junco, R. (2011). The need for student social media policies, *EDUCAUSE Review Magazine*, vol. 46, no. 1. Available at:

<http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume46/TheNeedforStudentSocialMediaPo/222666> [accessed 16 August 2012]

Landman, M. P. Shelton, J., Kauffman, R. M. and Dattilo, J. B. (2010). Guidelines for maintaining a professional compass in the era of social networking. 2010 APDS Spring Meeting. *Journal of Surgical Education*. vol. 67, no. 6, pp. 381-386, November/December.

MacDonald, J., Sohn, S. and Ellis, P. (2010). Privacy, professionalism and Facebook: a dilemma for young doctors. *Medical education*, vol. 44, no. 8, pp. 805-813.

Mostaghimi, A. and Crotty, B.H. (2011). Ideas and Opinions Professionalism in the Digital Age. *Annals of Internal Medicine*, vol. 154, no. 8, pp. 560-562.

Quinell, S-L. (2011). What not to share: digital professionalism and academia, <http://www.socialsciencespace.com/2011/11/what-not-to-share-digital-professionalism-academia/> [accessed 16 August 2012]

Wheeler, D. 4 globally oriented tips on using social media, <http://chronicle.com/blogs/worldwise/four-globally-oriented-tips-on-using-social-media/28339> [accessed 16 August 2012]

9 A checklist on social media etiquette for research dialogues

Social media etiquette is about being considerate of other people when interacting with them via social media tools in a way that supports a healthy ecosystem of conversations. A checklist on the dos and don'ts on social media etiquette for research dialogues is given in this section.

The checklist in this section, although written for researchers (postgraduate researchers or early career researchers), will also be useful for supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

The checklist is as follows:

Be conscious of your online persona

Engage selectively in the professional network to maintain your digital reputation and remember that what you post leaves a virtual, permanent, reflection of your identity that likely will never go away, sometimes even after you delete your own copy of it.

Consider what potential employers and colleagues will see when they find you on social media.

Add a profile picture

Everyone likes to “see” whom they are talking to.

Set up professional boundaries

Consider separating personal and professional accounts. Develop ‘dual citizenship’ online with separate professional (public) and personal (private) networking profiles.

Making ‘friends’

If someone does not want to be your friend, accept their decision gracefully; people have the right to make their own choices and you have to accept them.

Engage in a dialogue

The interaction should be based around a conversation with the network rather than talking at them. Show appreciation for the inputs that you receive and take interest in others.

Be authentic

Be yourself and be honest in your conversations and don't try being someone that you are not. Know the image you want to project in both social and professional settings and proceed accordingly. Think about the consequences of your engagement on any social network.

Be polite

Be positive and encouraging in your interactions with others. Don't be quick to react: “Stay away from social media sites when you are feeling emotional. “Intelligence goes down when emotions are high”³⁹.

³⁹ Uzelac, E. (2011). Mastering Social Media, Research Magazine, pp. 45-47

Be generous

Provide information that people can use, for example, updates on Twitter from a conference that you are attending: “the interesting thing about social media is it’s a give-to-get environment; if you come at it with a what-am-I-going-to-take-away-from-this-attitude, you are already behind the curve.” (Uzelac, 2011)

Play by the rules

Be respectful of group and community rules. Follow the terms of use of the social platform you are using. Also, be aware of the legal and professional framework that governs the social platform, your research group and institution.

Don’t overload your network

If you must post something, post something of significance that your network will find useful: a tip or a resource you find significant, or a blog post that discusses a relevant topic. Do not annoy your contacts with self-promotion.

Think before you post

Consider the effects of each post on yourself, your research group or institution before sending it. Don’t post anything on that you don’t want your current collaborators and future employers to read. Compose your posts, updates or tweets in a word processing document so you can check grammar and spelling before you send them. Avoid posting in the heat of the moment, especially when the discussion may escalate into a ‘flame’ war.

Don’t ignore questions

If someone asks you a question don’t ignore them. If they are trying to strike a conversation respond back to them.

Cite references

The posts should be factual; don’t make claims without evidence⁴⁰.

Protect confidential information

Protect information about your collaborators, fellow-researchers and information about your institution. If in doubt, obtain approval to share the information in social media sites.

Offer information of value

Offer information that stimulates collaborative knowledge-building, helps to consolidate resources and ideas, and facilitates dialogue. However, don’t state that you are an expert – **show it** by posting useful content.

Time your requests

Don’t keep asking people to join your other social media networks or read your blog. In fact, you should try to keep self-promotional links and tweets to a bare minimum. Asking for help too often will simply drive people away.

⁴⁰ LSE scholar admits race analysis was flawed:

<http://www.timeshighereducation.co.uk/story.asp?storyCode=417449§ioncode=26>

Also see, <http://www2.lse.ac.uk/newsAndMedia/news/archives/2011/09/Kanazawa.aspx> [accessed 16 August 2012]

Reply via email

Don't use Twitter or discussion groups to have one-to-one conversations; use email instead.

Keeping it up-to-date

Social media needs to be a constant consistent investment and can be very time-consuming. It is wise to choose a small set of technologies so that the information is up-to-date and the participation is regular.

Take responsibility

It will hurt your credibility if you tell people how busy you are and then they see you participating in Facebook everyday. Assume that everyone is watching your online activity and behave accordingly.

Don't be too quick to judge

When meeting individuals online get to know them a bit before you judge who or what they are.

9.1 Resources

7 rules of social media etiquette, <http://www.mir nabard.com/2009/09/7-rules-of-social-media-netiquette/> [accessed 16 August 2012]

25 rules of social media etiquette, <http://www.alexandrasamuel.com/world/25-rules-of-social-media-netiquette> [accessed 16 August 2012]

Social Media Etiquette: 10 Commonly Overlooked Best Practices in Social Media, <http://www.linkedstrategies.com/social-media-etiquette-10-commonly-overlooked-best-practices-in-social-media/> [accessed 16 August 2012]

Social media communication etiquette tips, <http://www.searchengineoptimizationjournal.com/2011/01/03/social-media-etiquette/> [accessed 16 August 2012]

The top 10 rules of netiquette for social media, <http://socialmediamore.com/the-top-10-rules-of-netiquette-for-social-media> [accessed 16 August 2012]

The top twelve business etiquette tips for social media, <http://www.businessknowhow.com/internet/socialmediaetiquette.htm> [accessed 16 August 2012]

The ultimate social media etiquette handbook, <http://www.techipedia.com/2008/social-media-etiquette-handbook/> [accessed 16 August 2012]

10 Social media and intellectual property rights

In a social software environment, anyone is potentially a creator or publisher of content. Also, due to the collaborative nature of social media, there is the likelihood of multiple contributors who may have never met, blurring the ownership of copyrights, identity of the collaborators and the different legal jurisdictions. It is important researchers and supervisors understand the legal ramifications so that they can get the benefits from social media while reducing risk.

For example, there are copyright issues around if it is a published paper or you have signed an agreement with a publisher, and then you would need to check whether you can post these papers in a bibliographic reference management system such as Mendeley (www.mendeley.com/) or Zotero (www.zotero.org/). It is, therefore, important to check the FAQ pages or similar 'support' pages for copyrights, intellectual property rights, and so on.

In this section, resources related to legal issues such as intellectual property rights (IPR), copyrights, and creative commons licenses are listed⁴¹. Links to websites and papers that discuss the ethical issues involved in using social media and, particularly, when using social media as a research platform, are also listed.

The resources in this section, although written for researchers (postgraduate researchers or early career researchers), will also be useful for supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

10.1 Web2Rights

Web2Rights (www.web2rights.org.uk/)⁴² is a JISC-funded initiative and has a number of resources (for example, <http://web2rights.org.uk/documents.html>) that would be useful to reflect on and to be guided about intellectual property rights (IPRs) and other legal issues that may arise when using social media.

This website has a six-minute animation in which the issues of intellectual property rights in the social software world are discussed:

www.jisc.ac.uk/news/stories/2008/12/web2rights.aspx

Pages 4-5 of this document list the issues of intellectual property rights in the social software world: <http://tinyurl.com/89xhzt3> or http://web2rights.org.uk/navigator/content/documents/1.1_IP_and_Web_2_Factsheet_v1.1.pdf

There are various diagnostic tools related to IPR, data protection and freedom of information. Please see: <http://web2rights.org.uk/diagnostic2.html>

⁴¹ The treatment of the topics in this section is not meant to be exhaustive but we have included several resources that colleagues can refer to for delving deep into any of these topics and for further investigations

⁴² The URLs in this section were last accessed on 16 August 2012.

10.2 JISC Legal

This website of JISC legal information: Legal guidance for ICT use in education, research and external engagement. www.jisclegal.ac.uk/ has links to several resources related to the use of social media tools in education, on copyright issues, and so on.

Theme Web 2.0: www.jisclegal.ac.uk/Themes/Web20.aspx

Facing up to Facebook: A guide for FE and HE,.
www.jisclegal.ac.uk/ManageContent/ViewDetail/ArticleType/ArticleView/ArticleID/2115.aspx

Copyright law essentials, <http://tinyurl.com/8y5x967> or
www.jisclegal.ac.uk/ManageContent/ViewDetail/ID/2028/Copyright-Law-Essentials-14042011.aspx

‘Are you an Accidental Outlaw?’, an online quiz to test the knowledge of law relating to the use of the Internet and social media.
www.jisclegal.ac.uk/ManageContent/ManageContent/ID/2233/Are-you-an-Accidental-Outlaw-Take-the-test-.aspx

10.3 Creative Commons License

Some of the issues that researchers and supervisors might like to consider are, for example, not publishing images, videos or any other content on Facebook, Twitter or on blogs without the permission of the owner as it could amount to infringing the copyrights of the owner.

Researchers and their supervisors developing toolkits and resources can release them in the public domain by choosing The Creative Commons copyright licenses and tools:
<http://creativecommons.org/licenses> For example YouTube allows users to mark their videos with a Creative Commons CC BY license [attribution - reuse allowed],
www.youtube.com/t/creative_commons

In Flickr, if you are searching for images to add into your presentations, etc., you can specify in the advanced search menu whether you are looking for Creative-Commons licensed content (please see here: www.flickr.com/search/advanced/).

10.4 Social media and fair use

These are some online resources that give guidance on the fair use of images, videos, etc., in social media.

BBC guidance on use of pictures from social media,
www.bbc.co.uk/guidelines/editorialguidelines/page/guidance-social-media-pictures%20
[accessed 17 August 2012]

Bettinger, B. T. (2010). Social media: implications for intellectual property law,
www.slideshare.net/blaine_5/social-media-implications-for-intellectual-property-law
[accessed 16 August 2012]

Fair use, Centre for Social Media, <http://centerforsocialmedia.org/fair-use> [accessed 17 August 2012]

How to: know when to use photos from social media, www.journalism.co.uk/skills/how-to-know-when-to-use-photos-from-social-media/s7/a545631/ [accessed 17 August 2012]

Starving the golden goose, Forrester blog, http://blogs.forrester.com/andrew_rose/12-03-06-starving_the_golden_goose [accessed 17 August 2012]

11 Ethical issues in social media research

In this section, we examine the ethical issues related to employing social media tools in research, and the challenges for individual researchers and research ethics committees. This topic was not the focus of investigations in this project but we have included a brief discussion in this section so as to sensitise researchers to the issues. We have provided a list of resources that can be referred to for further investigation on this topic.

The guidance notes in this section, although written for researchers (postgraduate researchers or early career researchers), will also be useful for supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Research projects in social sciences, cyber security, sociology, psychology, consumer behavior, computer science and related disciplines sometimes involve conducting research within social networking sites. Ethical concerns such as the nature of consent, privacy, contextual nature of sharing on social networking sites, possible identification and strategies for data anonymisation prior to public release, and terms of service and privacy policies of the platform, should be considered before conducting research on these sites or collecting data from social media.

11.1 Challenges for researchers and research ethics committees

Human research ethical committees and researchers face several ethical challenges when researchers employ the Web and social media in their research projects, particularly when there are still policy vacuums related to conducting research on social networking sites.

For example: Is it ethical for researchers to capture Twitter streams without obtaining specific, informed consent from the participants being observed? Is it right to assume that if something is shared with 'friends' and is available without a password, then the participant has (implicitly) given consent for that data to be used in research? What are the participants' expectations of how their tweets are being used? What if the participant deletes their tweets or changes their privacy settings? Did you obtain informed consent from a Facebook user to collect their data? Did you 'deceive' by becoming a 'friend' to collect data and to gain access into an online community? Can you use excerpts of the blog posts in your data and publications? Would these blog excerpts be linked back to the bloggers and to the blog? When researchers use blogs as their exclusive data source, they must discern the public/private aspects inherent in the nature of blogs in order to plan for appropriate protection of the bloggers' identities.

Traditional methods for protecting privacy of the participants such as by hiding or anonymising data are no longer sufficient, in social media spaces which are public, searchable, and traceable.

11.2 Resources

These are some of the resources related to the ethics of conducting research involving social media.

Alarmist views on Harvard Facebook study,
<http://www.institutionalreviewblog.com/2011/07/alarmist-views-on-harvard-facebook.html>
[accessed 17 August 2012]

Eastham, L. A. (2011). Research using blogs for data: public documents or private musings? *Research in Nursing & Health*, vol. 34, pp. 353-361.

Ethical issues of emerging ICT applications, <http://ethics.ccsr.cse.dmu.ac.uk/etica> [accessed 17 August 2012]

Internet research ethics, <http://internetresearchethics.org/> [accessed 17 August 2012]

Markham, A. (2012). Fabrication as ethical practice: quantitative inquiry in ambiguous Internet contexts, *Information, Communication and Society*, vol. 15, issue 3, pp. 334-353. Available at: <http://www.tandfonline.com/doi/abs/10.1080/1369118X.2011.641993> [accessed 17 August 2012]

Moreno, M. a, Fost, N.C. and Christakis, D. a. (2008). Research ethics in the MySpace era. *Paediatrics*, vol. 121, no. 1, pp.157-161. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/18166570> [accessed 17 August 2012]

Ohm, P. (2009). Broken Promises of Privacy: Responding to the Surprising Failure of Anonymization. *UCLA Law Review*, vol. 57, U of Colorado Law Legal Studies Research Paper No. 9-12. Available at: <http://ssrn.com/abstract=1450006> [accessed 17 August 2012]

Snee, H. (2008). Web 2.0 as a social science research tool, British Library, <http://www.bl.uk/reshelp/bldept/socsci/socint/web2/web2.pdf> [accessed 17 August 2012]

Taylor, L., McMinn, M.R., Bufford, R.K. and Kelly, B.T. (2010). Psychologists' attitudes and ethical concerns regarding the use of social networking web sites. *Professional Psychology: Research and Practice*, vol. 41, no. 2, pp.153-159. Available at: <http://doi.apa.org/getdoi.cfm?doi=10.1037/a0017996> [accessed 17 August 2012]

Zimmer, M. (2010). Revisiting research ethics in the Facebook era: challenges in emerging CSCW research, <http://michaelzimmer.org/2010/02/06/revisiting-research-ethics-in-the-facebook-era-challenges-in-emerging-cscw-research/> [accessed 17 August 2012]

Zimmer, M. (2010). "But the data is already public": on the ethics of research in Facebook, *Ethics and Information Technology*, vol. 12, pp. 313-325.

Zimmer, M. (2011). Research Ethics in the 2.0 Era, conceptual gaps for ethicists, researchers, IRBs, <http://www.slideshare.net/michaelzimmer> [accessed 17 August 2012]

Tor: Anonymity online, <https://www.torproject.org/> [accessed 17 August 2012]

12 Cloud computing and impact on research data storage

In our survey, many researchers and supervisors expressed concerns about storing research data and documents in the 'cloud'. In this section, we discuss the concept of cloud computing and how it influences research practices. Our treatment of this topic is not exhaustive as it was not the focus of our investigations for this project. However, we have provided a list of resources at the end of this section that may help for further investigations.

The guidance notes in this section will be useful for researchers (postgraduate researchers or early career researchers), and supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

12.1 What is cloud computing?

Data storage and access is occurring increasingly online and there is less need for local storage or on personal computers. This trend is referred to as migration to the 'cloud'. Cloud computing refers to computing resources that exist 'in the cloud', external to the organization but accessible via the network. Cloud computing is a service accessed via the Internet that allows users and enterprises to create, edit and store data and documents online. Cloud computing providers offer free or low-cost alternatives to extensive applications and storage on a user's personal computer. Also, data stored in the cloud can be accessed more easily than information maintained on a local network, as long as there is an Internet connection. At its core, cloud computing is about moving computing away from the desktop client/server model and into the data centre, where resources can be accessed over the Web on multiple platforms.

Cloud computing solutions are Web-based and are generally compatible across platforms (Mac, Linux, PC, etc.) and browsers (Safari, Internet Explorer, Firefox, Google Chrome). Facebook, Gmail, Hotmail, Yahoo! mail, Skype, Flickr, and document storage and sharing in Dropbox, box.net or iCloud are well-known examples of computing in the cloud where third-party servers provide the computing needs, with users accessing software and data as and when needed. If you have exchanged emails with a user who has a Gmail account, then the emails that were sent to this user are in the cloud.

In our survey, we noted that some research organisations have adopted Google Apps (www.google.com/apps/intl/en/nonprofit/index.html) and many researchers are using cloud-based Google Docs (<https://docs.google.com/>) for collaborative working instead of traditional office software. For bibliographic management systems, cloud-based tools are becoming the norm, for example, Zotero, Mendeley and Qiqqa.

12.2 Advantages and disadvantages of cloud computing

The **key advantages** of cloud computing are: cost savings, (for example, saving on manpower costs for installing and maintaining software applications, and hardware costs, electricity and cooling costs of running data centres); scalability (increase/decrease the computing resources based on the needs); resiliency (cloud computing providers usually have multiple sites with mirrored storage and redundant systems), and accessibility (access

from anywhere in the world and on multiple platforms) without having to install virtual private network (VPN) to get inside firewalls of local (institutional) networks.

The **disadvantages or risks** with cloud computing relate to data security, data loss and theft, privacy concerns (law and privacy concerns can depend on where the provider is located and multiple locations in multiple countries can complicate matters), and if there is a contractual dispute, then will the provider block access to the data?, or if the contract is not renewed, how will the data and services transition to a new provider? Cloud providers, especially, those offering free services, don't always provide the level of service many users assume they will. Also, if the terms of contract are unclear, it can lead to problems.

12.3 Challenges for researchers and ethics committees

Cloud computing raises several questions of responsibility for researchers and ethics committees, for example, to protect the research data from inadvertent disclosure or unauthorised access:

Data is no longer stored on the local network but somewhere in the cloud that may be outside the institution's control: is the confidentiality of the information adequately protected?, where is the data stored?, how and to where could it be moved?, where are the backups/copies kept?

What happens to the privacy of the data that is placed in the cloud? For example, University of North Carolina does not allow storing sensitive data in Dropbox and other cloud based services (<http://blog.ceb.com/2012/01/06/ethics-and-safety-with-cloud-computing/>, accessed 17 August 2012)

How secure is the data in the cloud? There can be unintended disclosures. For example, a programmer caused a temporary security breach in Dropbox⁴³ that allowed any user password to be used to access any user account. So adding another layer of encryption would give another layer of security and greater control on who can access the data.

How do we ensure the trustworthiness of those who manage the cloud? Are the cloud providers tracking data and usage to deliver advertisements?

How can you ensure that your data will be available when you need it? Cloud computing offers the ability to remotely access documents and data through web-based services, but if these documents or data become temporarily inaccessible due to an outage or corrupted in some way, the impact on the user can be profound.

Who owns the data in the cloud? Can you ensure that the data remains within the country?

Does the cloud service provider's terms of service address confidentiality and security? It would be useful to read and understand the terms of service of the cloud-based service.

⁴³ Safe in the cloud? Online service risks need care and coverage, <http://tinyurl.com/7rmmxsw> [accessed 17 August 2012].

Many researchers in our survey mentioned that they are using cloud-based services such as Dropbox for document sharing and storage but the research data is not held in the cloud. One researcher mentioned how her application to the ethics committee was refused when she mentioned that she would be storing the video data in Dropbox.

I was told that Dropbox is in the cloud, and anything you put there is by definition no longer yours, so you cannot use it for 'data' which you have promised to keep secure....

This researcher was advised to use encrypted external hard drives or to use the server spaces within the firewalls of the university.

This is a quote from a recent paper that captures the challenges posed by cloud services.

“As Pearson (2009)⁴⁴ has pointed out, “[C]loud services ... typically result in data being present in un- encrypted form on a machine owned and operated by a different organization from the data owner”; consequently, researchers will need to take significant precautions with anonymization techniques and data security strategies. Because most researchers, and indeed, many REB [Research Ethics Boards] members are not computer security experts, universities will need to prepare themselves in a shared responsibility model.”

Buchanan et al., (2011) Computer Science Security Research and Human Subjects: Emerging considerations for research ethics boards, Journal of Empirical Research on Human Research Ethics: An International Journal, vol. 6, no. 2, pp. 71-83,
www.ora.gov/communityirb/Resources/EmergingConsiderationsForResearchEthicsBoards.pdf

12.4 Resources

Buchanan, E., Aycok, J., Dexter, D., Dittrich, D., Hvizdak, E. (2011). Computer Science Security Research and Human Subjects: Emerging considerations for research ethics boards, Journal of Empirical Research on Human Research Ethics: An International Journal, vol. 6, no. 2, pp. 71-83. Available at:
<http://www.ora.gov/communityirb/Resources/EmergingConsiderationsForResearchEthicsBoards.pdf>

Cloud computing in research, <http://cloudresearch.jiscinvolve.org/wp/> [accessed 16 August 2012]

Hoy, M. B. (2012). Cloud computing basics for librarians, Medical Reference Services Quarterly, vol. 31, no. 1, pp. 84-91.

⁴⁴ Pearson, S. (2009). Taking account of privacy when designing cloud computing services. Cloud '09: Proceedings of the 2009 ICSE Workshop on Software Engineering Challenges of Cloud Computing (pp. 44–52). New Brunswick, NJ: IEEE Publications.

McCauley, J. M. (2011). Cloud computing – A silver lining or ethical thunderstorm for lawyers? Virginia Lawyer, vol. 59. Available at: http://www.vsb.org/docs/valawyer/magazine/vl0211_consultus.pdf [accessed 17 August 2012]

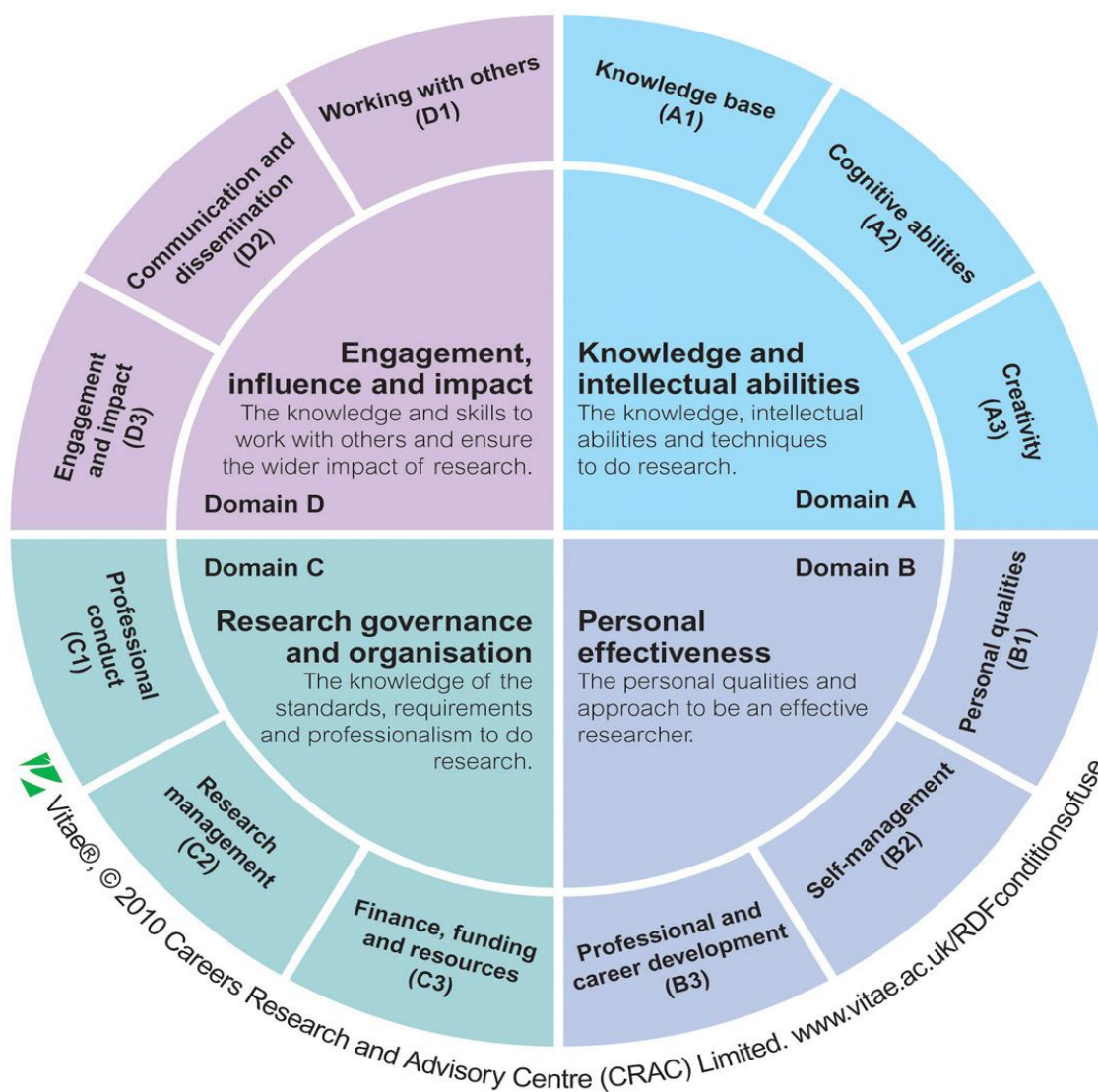
Should you be in the cloud?, <http://blog.ceb.com/2012/01/06/ethics-and-safety-with-cloud-computing/> [accessed 17 August 2012]

What lawyers should know about cloud computing security, www.smallfirminnovation.com/2012/02/what-lawyers-should-know-about-cloud-computing-security/ [accessed 17 August 2012]

Zimmer, M. (2011). Research, the Cloud and the IRB, <http://www.slideshare.net/michaelzimmer> [accessed 17 August 2012]

13 Social media tools and the Vitae Researcher Development Framework

The Vitae Researcher Development Framework (RDF)⁴⁵ describes the knowledge, behaviours and attitudes of successful researchers and encourages them to aspire to excellence through achieving higher levels of development. The framework is a comprehensive new approach to enhancing the careers of researchers. It was developed by and for researchers, in consultation with academic and non-academic employers.



The RDF contains four domains, which encompass what researchers need to know to do research, how to be effective in their approach to research, when working with others, and in contributing to the wider environment. These four domains are:

⁴⁵ Vitae Researcher Development Framework, <http://www.vitae.ac.uk/researchers/428241/Researcher-Development-Framework.html> [accessed 16 August 2012]

Domain A: Knowledge and intellectual abilities; the knowledge, intellectual abilities and techniques to do research

Domain B: Personal effectiveness; the personal qualities and approach to be an effective researcher

Domain C: Research governance and organisation; the knowledge of the standards, requirements and professionalism to do research

Domain D: Engagement, influence and impact; the knowledge and skills to work with others and ensure the wider impact of research

In this section, for each domain of the RDF, we present illustrative scenarios from our empirical data of how social media tools⁴⁶ can be employed to develop the knowledge, behaviours and attributes specified for that domain.

13.1 Domain A of the Vitae Researcher Development Framework

This domain contains the knowledge and intellectual abilities needed to be able to carry out excellent research. For each of the sub-domains, we present examples from the data that we collected to show how the use of social media tools is enabling the development of research skills. The names have been changed but the scenarios are authentic.

Examples for sub-domain A1 Knowledge base

Jane ran the pilot studies of her research in Second Life (www.secondlife.com/) which enabled her to learn about the logistics of conducting interviews, alerted her to the degree of preparation she needed to conduct interviews effectively, and become attentive to ethical issues.

Ronan uses Google Scholar (<http://scholar.google.com>) for searching for theses, books, papers or articles related to his research. He finds it particularly useful for searching relevant books and is sometimes able to read full or parts of chapters of books.

Sophie organises and annotates the research papers in the Paper (www.mekentosj.com/papers/) application on her iPad. Sophie said: "I love the 'Papers' application! I always have my full library on the iPad, which comes in extremely handy when I want to show my supervisors [in face-to-face supervision meetings] something I've read and annotated."

John uses Zetoc alerts (<http://zetoc.mimas.ac.uk/>) to track relevant journals. The service, Zetoc alerts, sends email alerts to John matching the search criteria that John has provided whenever new data is loaded into the database. The searches may be for particular journals, for authors and for keywords from the titles of articles and papers. These email alerts are sent to John on the day the new data is loaded into the database.

⁴⁶ The URLs for various tools in this section were last accessed on 17 August 2012.

Harry has an account on citeulike (www.citeulike.org/). Citeulike is a free service that helps Harry to store, organise and share the scholarly papers he is reading.

Examples for sub-domain A2 Cognitive abilities

Jackie about her blog: "...one of the main roles of the blog is that it acted as a repository for emergent ideas and reflections. The use of [my blog] in this manner continued for the duration of the study for reflections relating to [my] post-doctoral work."

James has joined the Science Circle group in Second Life (www.secondlife.com). He regularly attends seminars and participates in discussions with the group, which has members from all over the world. Being a part of a group in a virtual world enables him to meet with researchers in his discipline from all over the world.

To select articles and authors for setting up RSS feeds (www.whatissrss.com/), Chris has had to think about his research in a critical manner, particularly, the relevance of some research topics over the others.

Mary uses the social bookmarking tool Delicious (<http://delicious.com/>) to organise the web resources related to her research. Mary assigns tags or keywords to each resource to categorise the resources in areas related to her research. Delicious combines information gathered from unique identifiers (i.e. the URL of the resource) with information gathered about the most popular tags used for that URL. This allows Delicious to suggest possible tags when users are bookmarking new resources or to provide users with a list of 'common tags' (i.e. popular tags that are assigned to the same resource by multiple users). These additional tags, suggested by Delicious for the resources Mary is organising and categorising, helps her to think about her research from different perspectives.

Examples for sub-domain A3 Creativity

Debbie is an early career researcher. She has created videos of 3-4 minutes each of her research and has posted them on [YouTube](https://www.youtube.com/). The process of designing the videos (commentary, scenes, etc.) for an audience who may not be familiar with her research has enabled her to develop a new approach to present her research as compared to traditional journal articles.

Mark used Wordle (www.wordle.net/) visuals in a workshop that he ran with his research participants to compare before and after situations. He generated a Wordle based on participants' inputs on the topic of the workshop at the start of the workshop and then at the end of the workshop. This helped him to compare how the participants' perceptions may have changed by listening to the case studies, examples, and interactions during the workshop.

13.2 Domain B: Personal effectiveness

This domain contains the personal qualities, career and self-management skills required to take ownership for, and engage in, professional development. For each of the sub-domains, we present examples from the data that we collected to show how the use of social media tools is enabling the development of research skills. The names have been changed but the scenarios are authentic.

Examples for sub-domain B1 Personal qualities

Matt interacts on Facebook (www.facebook.com/) with researchers working in his area. He finds Facebook useful to keep in touch with fellow researchers (e.g. finding out about the conferences they are going to or papers they are reading). He occasionally engages in discussions with them on Facebook. He recognises the boundaries of personal and professional lives while interacting on Facebook.

Sam maintains a blog or research journal where she reflects on her research. If she feels that she is not ready to share some of her ideas or thoughts with the wider audience and even with her supervisors, she makes those posts private until she has firmed up her ideas. She said: "I have a large number of private posts where I reflect on aspects of my research, and often write things that I really wouldn't want my advisory team or the wider world to see until I am ready!"

Examples for sub-domain B2 Self-management

Norma rehearses for her conference presentations in Second Life (www.secondlife.com/). It allows her to collaborate and practise with co-presenters who are geographically distributed. Norma said: "It is easy to co-operate and work with your colleagues in Second Life, especially on preparation or rehearsing for mutual presentations for workshops, conferences etc. as an alternative to real life meetings which can be difficult with busy schedules."

Peter uses DEVONthink (www.devontechnologies.com/products/devonthink/overview.html) to manage his research: to keep extensive notes and as a research journal.

Joan creates her To-do lists on Teux Deux (<http://teuxdeux.com/>) to manage her tasks on a day-to-day basis. She finds it easy to manage her routine by having an online application that she can access from anywhere. She can also synchronise the task lists with her iPhone.

Examples for sub-domain B3 Professional and career development

Chris, a postgraduate researcher in a Business School, has set up RSS feeds from some of the bloggers and regular contributors on the Financial Times website. The new articles and blog posts appear in Chris' Google Reader (www.google.com/reader) account and this enables him to keep up-to-date with the commentaries and views of experts in his research area. The RSS feeds help save him time by not having to keep visiting the Financial Times website to see when a new article/blog post appears.

Michael conducts research in technology-enabled learning. He has joined one of the groups related to e-learning on LinkedIn (www.linkedin.com/home) to keep himself abreast of the latest developments in his area.

Mike finds that Second Life (www.secondlife.com/) is an excellent platform for conducting rehearsals for job interviews. There is a resource set up in Second Life by a university in New Zealand that provides pointers for preparations for job interviews through role-play scenarios and quizzes. In Second Life, one can practise in rooms and locations that are very similar to real life giving the necessary practice and preparation ahead of the actual interview.

13.3 Domain C: Research governance and organisation

This domain relates to the knowledge of the standards, requirements and professional conduct that are needed for the effective management of research. For each of the sub-domains, we present examples from the data that we collected to show how the use of social media tools is enabling the development of research skills. The names have been changed but the scenarios are authentic.

Examples for subdomain C1 Professional conduct

Inge is a Human-Computer Interaction (HCI) researcher. She has joined the (closed) Usability TESTING mailing list (UTEST) to keep abreast of the various ethical issues in usability engineering. This mailing list has discussions on ethical issues from time to time and there are several HCI experts who are active contributors to the mailing list. Further, by participating on this mailing list and by following the participation guidelines set by the owner of the mailing list, Inge is learning the etiquette of online participation and is being sensitised to ethical issues in online communities.

Ronnie is an educational researcher. She has joined Cloudworks (<http://cloudworks.ac.uk/>), which is a networking platform for researchers in technology-enabled learning. There is a special strand in Cloudworks on the ethical issues of conducting research on e-learning technologies: <http://cloudworks.ac.uk/cloud/view/2267>

Examples for sub-domain C2 Research management

Helen keeps the minutes of the supervision meetings, the documents related to her research, a project plan, and an account of her weekly progress on the project wiki. Helen's supervisors have access to the wiki and can keep a track of her progress.

Alison maintains a blog on her EdD programme. She posts regularly on the blog about her progress as a way to keep herself motivated and organised. She says: "the main advantage I'm finding at present is that I'm trying to make regular posts, to keep myself motivated and organised to some extent. Leaving a gap in the blog implies little progress."

Examples for sub-domain C3 Finance, funding and resources

David has an account on Twitter (www.twitter.com) and he 'follows' funding bodies to keep abreast of funding opportunities. When he is unable to attend a conference in his research area, he uses the conference hashtag to follow the between-session tweets to find about the discussions at the conference.

13.4 Domain D: Engagement, influence and impact

This domain relates to the knowledge, understanding and skills needed to engage with, influence and impact on the academic, social, cultural, economic and broader context. For each of the sub-domains, we present examples from the data that we collected to show how the use of social media tools is enabling the development of research skills. The names have been changed but the scenarios are authentic.

Examples for sub-domain D1 Working with others

Tania maintains a blog related to her research project. She often receives comments and feedback from her readers. Reflecting on her readers' comments and formulating

arguments to respond to the comments gives Tania the practice of participating in research dialogues.

Jess and his supervision team have an account on the social bookmarking site Delicious (www.delicious.com/) to store bookmarks. Jess 'follows' fellow researchers by adding them to his team's network or by searching their bookmarks via 'tags'.

Simon has an installation of Drupal (<http://drupal.org/>) on a public webserver and he uses the blog module of Drupal to maintain his research journal and for communications within the project team. He finds it very useful to be able to tag (specify keywords) to his blog posts that help him to search his own blog. The installation is password protected and his supervisors comment on his blog posts.

Examples for sub-domain D2 Communication and dissemination

James views videos related to his research and to other disciplines he is interested in on YouTube, iTunesU and listens to Ted Talks (www.ted.com/talks) to learn how to communicate one's research effectively to a range of audiences.

Heather posts her presentations from events on SlideShare (www.slideshare.net/). The attendees at the events download her presentations and post their comments and feedback. Heather also receives queries and offers for collaboration from researchers in related areas who come across Heather's presentations.

Norma practises for her conference presentations in Second Life (www.secondlife.com) with her colleagues and supervisors in the audience. By simulating a real life scenario in Second Life that has a setting similar to real life (such as podium, audience, etc.), she is able to rehearse. Norma feels that these practice sessions are helping to improve her presentation communication skills. She said the following: "you tend to notice your avatar, you can watch yourself better and that helps to enhance one's presentation and to observe one's movement of hands and even facial expressions."

Examples for sub-domain D3 Engagement and impact

Jim develops YouTube videos to explain his research and receives comments from viewers. Jim was invited to showcase his videos in a recent visit by a funding body to his institution.

Susan participates in conferences held in Second Life (www.secondlife.com) and presents posters and videos related to her research. Presenting in Second Life enables her to get feedback and comments from an international audience. Preparing posters for a wide audience makes her think about how she should present her research in a manner that non-experts can understand.

14 Social media in research dialogues: implications for supervisors and institutions

Based on our survey and literature review, we highlight the challenges for institutions and supervisors that arise from researchers using social media in research dialogues. In this section, we also propose some recommendations for the adoption and professional use of social media in research dialogues.

14.1 Challenges for institutions and supervisors

Given the adoption of social software such as blogs, wikis, Twitter, and so on by researchers as a means of sharing their research and supporting their networking and public engagement activities, there are several challenges for institutions and supervisors that they should be aware of, such as:

Managing social capital

A researcher criticising his supervision on a blog, for example, may adversely affect the advisor-postgraduate researcher, institution-postgraduate researcher, and institution-advisor relationships, and may have unanticipated repercussions for the institution.

Managing intellectual capital

Given researchers' adoption of social software such as blogs, wikis, Twitter, and so on as a means of sharing their research and supporting their networking and public engagement activities, it is important that researchers are made aware of the professional issues of publishing on the web, such as intellectual property rights, ethical issues with respect to their data, and the duty of care they owe their research community.

Some supervisors may prefer their researchers to refrain from openly discussing their research in the public domain (e.g. in a tweet or a blog), particularly if the researcher's project is a part of a larger research project or programme involving other colleagues and postgraduate researchers. If the project has been sponsored by a funding body or by an industry partner, there might be restrictions regarding data protection, intellectual property, and copyrights.

Training the supervisors

Further, in order to guide researchers about use of social media in research and digital literacies, the supervisors themselves need training. There is currently little (formal) guidance available to supervisors about social media use in research dialogues and the associated risks and challenges.

14.2 Teaching digital professionalism: a set of recommendations

It is important that researchers are aware of the potential repercussions as well as professional responsibilities of interacting on social media. Even when using social media as a personal network rather than a professional tool, there remain high standards of professionalism that researchers should adhere to. Institutions should take a proactive stance in setting guidelines for social media usage. Some of the valuable concepts that need

to be considered are digital footprint and how everything they do online has an impact on their professional lives.

The best way to develop institutional concepts for e-professionalism is to engage various users of these technologies in a consensus-oriented dialogue that involves postgraduate researchers, educators, policy makers and administrators. Such a dialogue, especially if it is sustained over time, also has the potential to reduce the number of problems arising from the use of social media by virtue of shared understanding and standards for online professionalism that are agreeable to all parties involved. Also, social media users will not feel that their institutions are controlling them.

Mark McDonald, co-author of 'The Social Organization: How to Use Social Media to Tap the Collective Genius of Your Customers and Employees'⁴⁷, estimates that around 70 per cent of companies have tried social media for external marketing communications, and around 20 per cent started to bring it into the company to connect employees. Companies such as Deloitte, Electronic Arts, Cemex and Ford as well as organisations such as NASA and FBI have started using social media tools for collaborative working and trying to find better ways of tapping into employee resources. Deloitte, for example, introduced Yammer⁴⁸, a corporate equivalent of Facebook, in early 2011 and already has 4,600 of its 12,500 UK employees using the service⁴⁹. Hence, teaching researchers about digital professionalism is also preparing them for the future and giving them skills that they may find useful in other work environments.

We propose recommendations for supervisors, project leads and institutions to guide researchers about e-professionalism.

Organise events to educate researchers

Organise seminars on digital professionalism to raise their awareness of the positive and negative outcomes of using social media. For example, please see: 'Connecting researchers' at the University of Bath, www.ariadne.ac.uk/issue67/cope-jones/ [accessed 17 August 2012]

Define digital professionalism in the context of the discipline

The expectations from a medical or nursing postgraduate researcher could be quite different from, say, a researcher in social sciences.

Assign mentors

'Super-users' of social software who may have already come across issues of e-professionalism could act as mentors for entrants; explicit and consistent role modelling of professional behaviour, reflection and self-assessment are needed to encourage the development of e-professionalism.

⁴⁷ http://www.gartner.com/it/products/research/media_products/social_org/index.jsp [accessed 17 August 2012]

⁴⁸ Yammer: The Enterprise social network, <http://www.yammer.com/>, [accessed 17 August 2012]

⁴⁹ Palmer, M., Social networks bring speed and challenge to companies, FT.com (Financial Times online), December 8, 2011.

Develop institutional policies or departmental policies

For example, the British Medical Association has developed a guidance document to inform health professionals about the challenges and potential pitfalls of using social software. For example, please see:

www.bma.org.uk/press_centre/video_social_media/socialmediaguidance2011.jsp, accessed 17 August 2012]

Discuss potential risks of online content

Make the supervisors and researchers aware of the permanence of online content, risks to future job opportunities and damaged relationships with members of the research community.

Improve the visibility of researchers who are already engaging with social media.

Highlighting existing initiatives within the institution will help motivate less engaged researchers and supervisors.

14.3 Resources

Baer, W. & Schwartz, A.C. (2011). Teaching professionalism in the digital age on the psychiatric consultation-liaison service. *Psychosomatics*, 52(4), pp.303-9. Available at: <http://www.ncbi.nlm.nih.gov/pubmed/21777712> [Accessed 17 August 2012]

Cain, J. and Romanelli, F. (2009). E-professionalism: a new paradigm for a digital age. *Currents in Pharmacy Teaching and Learning*, vol. 1, no. 2, pp. 66-70.

Digital professionalism (several links are available on this page; please scroll almost half way through), <http://www.scotlandscollleges.ac.uk/sub-net/subject-networks/illuminating-practice.html> [accessed 17 August 2012]

Digital professionalism: a barrier to open sharing? New competencies, or more of the same, <http://www.medev.ac.uk/blog/suzannes-blog/2011/jun/21/slides-for-todays-uhmlg11-presentation/> [accessed 17 August 2012]

Farnan, J.M., Higa, J. T., Paro, J. A. M., Reddy, S. T., Humphrey, H. J. and Arora, V.M. (2010). Training Physicians in the Digital Age: Use of Digital Media Among Medical Trainees and Views on Professional Responsibility and Regulation. *AJOB Primary Research*, vol. 1, no.1, pp.3-10. Available at: <http://www.tandfonline.com/doi/abs/10.1080/21507711003697527> [accessed 17 August 2012]

Greysen, S.R., Kind, T. & Chretien, K.C. (2010). Online professionalism and the mirror of social media. *Journal of general internal medicine*, vol. 25, no.11, pp.1227-1229. Available at: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=2947638&tool=pmcentrez&rendertype=abstract> [Accessed 28 August 2012]

Junco, R. (2011). The need for student social media policies, EDUCAUSE Review Magazine, vol. 46, no. 1. Available at:

<http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume46/TheNeedforStudentSocialMediaPo/222666> [accessed 17 August 2012]

Landman, M. P. Shelton, J., Kauffman, R. M. and Dattilo, J. B. (2010). Guidelines for maintaining a professional compass in the era of social networking. 2010 APDS Spring Meeting. Journal of Surgical Education. vol. 67, no. 6, pp. 381-386, November/December.

Quinell, S-L. (2011). What not to share: digital professionalism and academia, <http://www.socialsciencespace.com/2011/11/what-not-to-share-digital-professionalism-academia/> [accessed 17 August 2012]

Swain, H. Social media presents challenge to universities, <http://www.guardian.co.uk/education/2011/jun/20/universities-social-media-reputation?INTCMP=SRCH> [accessed 17 August 2012]

Wheeler, D. 4 Globally oriented tips on using social media, <http://chronicle.com/blogs/worldwise/four-globally-oriented-tips-on-using-social-media/28339> [accessed 17 August 2012]

15 Guidance notes for a selection of social media tools

For the social media tools that were the most prevalent in our dataset, we have prepared guidance notes. For each of the tools, we describe the tool, list some tips on how to get started, discuss how the tool is useful for researchers, and provide a list of resources for further information and pointers.

The guidance notes in this section, although written for researchers (postgraduate researchers or early career researchers), will also be useful for supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Clicking on any of the links in the list below will take you to the guidance note for that tool⁵⁰.

[Blog for researchers](#)

[Communication and collaboration tools for researchers](#)

[Curation tools for researchers](#)

[Delicious for researchers](#)

[Facebook for researchers](#)

[Google Scholar for researchers](#)

[iTunesU for researchers](#)

[LinkedIn for researchers](#)

[Mendeley for researchers](#)

[RSS feed for researchers](#)

[Second Life for researchers](#)

[Sense making tools for researchers](#)

[Skype for researchers](#)

[SlideShare for researchers](#)

[Twitter for researchers](#)

[Wiki for researchers](#)

[Wordle for researchers](#)

[YouTube for researchers](#)

⁵⁰ All the URLs in this section were last accessed between 16th and 20th August 2012.

Blog for researchers

What is a blog?

Short for 'web log', a blog allows an author to publish their thoughts or diary. Entries can be 'tagged' with appropriate keywords so that related entries or posts can be brought together. In some blog services, the access to entries can be controlled to readers: to certain individuals, or to the public. Other users (or readers) are typically able to add their own comments to the posts.

How to get started?

WordPress (<http://wordpress.com>), Blogger (<http://blogger.com>) and Windows Live Writer 2011 (<http://explore.live.com/windows-live-writer/?os=mac>) are some of the examples of blogging software for creating and managing blogs. On a blog, a user can post text, images, audio and video content on any subject. Comments from readers can be controlled via moderation or can be disallowed.

How it is useful for researchers and for developing research skills?

As a private space for reflection and note-taking and for documentation

As a collaborative space to share with the supervision team:

- progress reports, ideas, resources, notes of meetings, early drafts of dissertation
- to receive feedback from the supervisors

As an external website to:

- record reflections on research, or events attended
- receive early feedback on research ideas
- develop a personal voice
- to publicise and promote research, or for public engagement
- network for funding and employment opportunities
- build a community of researchers with similar research interests
- recruit participants for research
- share personal resolutions with readers
- keep social connections with family and friends

Resources

10 Social media tips for bloggers, <http://mashable.com/2012/02/17/social-media-bloggers-tips/>

Blogging about your research: first steps, <http://paper.li/PhD2Published/1308225917>

Minocha, S. and Kerawalla, L. (2010). Understanding students' self-motivated blogging and development of study skills and research skills. In: Lee, Mark J. W. and McLoughlin, Catherine eds. Web 2.0-Based E-Learning: Applying Social Informatics for Tertiary Teaching. IGI Global, pp. 149–179. Please see: <http://oro.open.ac.uk/19308/>

Research blogging, <http://www.researchblogging.org/> [ResearchBlogging.org is a system for identifying the best, most thoughtful blog posts about peer-reviewed research. Please see

<http://www.researchblogging.org/static/index/page/help> for details on registering your blog, and for information on how this site works.]

The virtues of blogging as a scholarly activity, <http://chronicle.com/article/The-Virtues-of-Blogging-as/131666/?CMP=>

An early career researcher discusses why she started blogging when she was doing her PhD and what her experiences were:

I started blogging so as to force myself into the discipline of writing. During one of the training sessions, I was advised that I was not so good at critically reviewing literature and somebody else's work, so I started practising this in my blog...and many postgraduate researchers who read and commented on my blog mentioned how my writing was improving...

The more I wrote in the blog, the more confident I became about my academic writing. I was also motivated to write as I knew that I had readers within the university. It is motivating when you know that somebody will read the blog post and comment.

My research was on a specialised area of YY in the XXX department and one day, I received a comment from a professor of YY in the US who calls himself the 'Father of YY'. Yeah, it was a great experience.

An early career researcher discusses how she had set up a time-limit to her blog during her PhD:

... I had kept a time limit to my blog... so the blog was attached to my project.... I had decided early on that when my PhD ended, I would stop writing in this blog and set up another blog..

An early career researcher discusses her blogging experiences while she was doing her PhD:

...when I was doing my PhD, whenever I faced any technical problem and had come up with a solution; or if I learned any trick ion Nvivo [qualitative data analysis software], I used to post the solutions and tips on my blog; they were my reference but if any other postgraduate researcher asked me about something that I had already tackled, I would point them to my blog ...

A postgraduate researcher discusses her responsibility as a blogger:

... As a blogger, you have a responsibility, you have to read and comment on others' blogs also...in this software that I use, I can find out who my followers are... and I look up their blogs and comment on them from time to time

Communication and collaboration tools for researchers

Flash Meeting

Flash Meeting <http://flashmeeting.open.ac.uk/home.html> is a video conferencing tool. It allows video and audio broadcast over the Internet. It allows a group of people to meet online from anywhere in the world. It does not require any download or installation. It works in a web browser with the Adobe Flash™ player. Flash meeting has been used for postgraduate researcher discussions, tutor moderated meetings, virtual seminars, web-casts of physical lectures, and project meetings. Please see <http://openlearn.open.ac.uk/course/view.php?id=3101> for a quick start guide.

FlashVlog

FlashVlog is an OpenLearn tool that allows you to create video blogs online almost instantly. You only need a properly-installed webcam and microphone attached to your computer, as well as the Adobe Flash 'plug in' version 8 or above. Please see <http://openlearn.open.ac.uk/course/view.php?id=3361> for a quick start guide.

Elluminate

Elluminate www.illuminate.com/ (now a part of Blackboard Collaborate: www.blackboard.com/platforms/collaborate/overview.aspx) is a web-based real-time e-learning and web collaboration environment. It enables participants to synchronously communicate using audio, written messages and an on-screen whiteboard, and to share software applications. Elluminate sessions are held in virtual 'rooms' and can be used for small group tutorials, lectures, meetings, training event, or drop-in events. You can try Blackboard Collaborate for free <http://try.bbcollaborate.com/trial/register.go> and get a free virtual room (vRoom) for three people at the end of the trial.

Cloudworks

Cloudworks <http://cloudworks.ac.uk> is a networking platform for people interested in sharing, finding and discussing educational ideas and experiences. It is useful for researchers who have an interest, either formally or informally, in education. It can be used for asking a question of the community, discussing a problem, sharing ideas, showcasing your work, collecting related resources together and for finding inspiration.

A supervisor who is leading on several projects, some of them involving international partners, discusses his use of technologies for research dialogues:

I use BaseCamp (for project coordination), Mendeley (for shared referencing), FaceBook, (for keeping in contact with research colleagues and for occasional chat), Skype, (for chat and short meetings), Flashmeeting, (for larger structured meetings), and email for everything else...

Resources

Some other tools for consideration: Skype www.skype.com, Googlechat www.google.com/talk/, Zipcast www.slideshare.net/zipcast/⁵¹, Second Life www.secondlife.com/

Audacity <http://audacity.sourceforge.net/> for recording and editing sounds

⁵¹ Slideshare moves into virtual meetings with ZipCast, <http://techcrunch.com/2011/02/16/slideshare-zipcast/>

Curation tools for researchers

What are curation tools?

As the volume of content on the web continues to grow, it is important to select and organise relevant information. A content creator is someone who continually finds, groups, organises and shares the best and most relevant content on a specific issue. Amassing or aggregating is not curating: curation helps to filter the flood of content for a specific purpose, place, time and audience so that meanings can be derived. Curation is an act of creating new meaning by combining existing content with new perspective. For example, Scott Merrick curates the topic of Virtual Worlds Education from blogs, tweets, videos, etc. and consolidates the various items into an online magazine. Scott's curated site on Virtual Worlds and Online Education is at www.scoop.it/t/virtual-worlds-education/). Another example of curation is (www.scoop.it/t/social-media-research) where the news, articles, etc. on Social Media Research are consolidated.

A researcher can choose to be a curator or he can choose to follow curators.

How to get started?

There are various curation tools available, for example, Paper.li <http://paper.li/>, Storify <http://storify.com/>, Scoop.it www.scoop.it/, Curated.by www.curated.by/ and Pearltrees www.pearltrees.com/

How is it useful for researchers and for developing research skills?

- Helps in managing the information
- For curating the content on the research topic of interest which is on a variety of different media (e.g. videos, images, podcasts) and on social software platforms (e.g. Facebook, Twitter, blogs, RSS feeds, news)
- To collect the tweets from a conference or workshop and from a particular hash tag into an online magazine
- Through the online magazine, people can be drawn to the researcher's website
- Becoming a curator results in total immersion in your topic. It means finding and selecting information from across the web, choosing what you want to share, and then gathering it together all in one place
- Becoming a curator is the quick way to become a topic expert, or to be seen as a person who is working in that area
- Unlike Paper.li, Scoop.it does not create an online magazine automatically. Instead, you have to go to the dashboard, type in some keywords, scroll through the results, and then click on the content you would like added to your Scoop.it page. By creating the Scoop.it page, the knowledge about that particular topic will be enhanced
- There are three basic rules to becoming a content curator: do it on a specific topic so that you are seen as a trusted source or expert on that topic, share only the best stuff; and do it continuously so that you are continuously providing up-to-date content
- To receive content or to be alerted of the content, you could do the following: set up Google alerts on certain keywords, set up Google RSS Reader to monitor relevant blogs and news sites can help; and update your LinkedIn status with links to useful content

Resources

10 powerful tools for the busy content creator, <http://www.interactmedia.com/content-marketing-blog/bid/63383/10-Powerful-Tools-for-the-Busy-Content-Curator>

10 tips on curating social media content for your non-profit or foundation, <http://www.scoop.it/t/real-time-news-curation/p/436546002/10-tips-on-curating-social-media-content-for-your-nonprofit-or-foundation>

30+ cool content curation tools for personal and professional use, <http://www.webadvantage.net/webadblog/30-plus-cool-content-curation-tools-for-personal-professional-use-3922>

A review of social bookmarking and other link curation tools, <http://twrctank.com/2011/08/14/a-review-of-social-bookmarking-and-other-link-curation-tools/>
Content curation: <http://ibuchem.wordpress.com/2011/08/14/content-curation/>

How to use content curation to add value to your website, <http://econsultancy.com/uk/blog/7440-how-to-use-content-curation-to-add-value-to-your-own-website-2>

Paper.li: useful Twitter summary or major irritation, <http://www.rba.co.uk/wordpress/2010/11/07/paper-li-useful-twitter-summary-or-major-irritation/> [a newspaper can be generated from the Twitter account and can be sent on to other Twitter users]

PhD2Published Daily, <http://paper.li/PhD2Published/1308225917> [a useful resource for researchers and also an example of curation]

Research analysis and curation tools, <http://www.library.uq.edu.au/research-support/research-analysis-and-curation-tools>


Social content creation – a shift from the traditional, <http://heyjude.wordpress.com/2011/08/08/social-content-curation-a-shift-from-the-traditional/>


Scoop.it – Content creation tool, building authority, <http://www.iblogzone.com/2011/11/scoop-it-content-curation-tool.html>

The great collective, <http://steve-wheeler.blogspot.com/2011/07/great-collective.html>

Why curation is just as important as creation, <http://mashable.com/2011/03/17/curation-importance/>

Example of curation: Scoop.it on social media research


[Join Scoop.it](#)
[Login](#)



Social Media Research

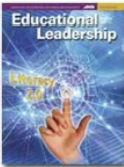
"Research on the use of social media in education (and not only)"

Curated by Ilona Buchem

1.0K Views
Share
Tags
Suggest
Follow

www.scoop.it (via @writerswriting) - February 12, 6:45 PM

Educational Leadership: Literacy 2.0: Orchestrating the Media Collage | Writing Tools Web 3.0




"Founded in 1943, ASCD (formerly the Association for Supervision and Curriculum Development) is an educational leadership organization dedicated to advancing best practices and policies for the success of each learner."

Scooped by Ilona Buchem

abcnews.go.com (via @Rothschild999) - February 12, 6:39 PM

US Seeks to Mine Social Media to Predict Future




"US government seeks software to mine billions of social media posts to predict future threats (US Seeks to Mine Social Media to Predict Future; But in a formal "request for information" from potential contra...)..."

Scooped by Ilona Buchem

mindshift.kqed.org (via @DrEricWood) - January 29, 8:08 PM

Explosive Growth in Education Apps | MindShift




"RT @SublimeLearning: Explosive growth in educational apps means more work, more research, more reward."

Scooped by Ilona Buchem

mashable.com - February 3, 9:24 PM

How Higher Education Uses Social Media [INFOGRAPHIC]



"As social media becomes more integral to students' lives, educational institutions are finally catching on, and catching up. Here's how colleges and universities are leveraging social in the classroom and the recruiting office."

Scooped by Ilona Buchem

www.pewinternet.org (via @UTguru) - January 29, 8:05 PM

Teens | Pew Research Center's Internet & American Life Project

"Adolescents have been called "digital natives," but data suggests that they are both comfortable with new technologies, and yet not always as technically savvy as we collectively believe them to be."

Scooped by Ilona Buchem

www.danah.org - January 14, 9:38 PM


Research on Social Network Sites

Bibliography of Research on Social Network Sites

Scooped by Ilona Buchem

clintlalde.net - January 16, 10:49 PM

The role of Twitter in Personal Learning Networks



Master Thesis on "The role of Twitter in Personal Learning Networks".

Abstract:

"This qualitative phenomenological study involving in-depth interviews with seven educators in K-12 and higher education examines the role that the microblogging service Twitter plays in the formation and development of Personal Learning Networks (PLN) among educators. A double hermeneutic data analysis shows that Twitter plays a role in the formation and development of PLNs by allowing educators to; engage in consistent and sustained dialogue with their PLN, access the collective knowledge of their PLN, amplify and promote more complex thoughts and ideas to a large audience, and expand their PLN using features unique to Twitter. This research also examines the nature of a PLN and shows that participants believe their PLN extends beyond their Twitter network to encompass both face-to-face and other ICT-mediated..."

Delicious for researchers

What is Delicious?

Delicious is a free online social bookmarking service, which means you can save all bookmarks online and in one place. Since the bookmarks are stored online, you can get to them from any computer, whether you are at home, at work, or on the road. You can share your bookmarks with other people, and see what other people are bookmarking.

Instead of organising bookmarks in folders, Delicious uses tags. Tags are simply words you use to describe a bookmark. Unlike folders, you make up tags when you need them and you can use as many as you like. This means, for example, that all of the bookmarks you tag with 'sustainability' and with 'ecology' will automatically be placed in the 'sustainability' collection and the 'ecology' collection. Since tags work the same way for everyone, you can also check out other people's 'sustainability' or 'ecology' bookmarks. You can even combine tags to see bookmarks with **sustainability** and **ecology**. As your collection of bookmarks grows, you'll see the bookmark on your 'sustainability' tag page as well as your 'ecology' tag page. This is also a great way to share your knowledge with friends, as every tag page has an easy-to-remember URL that you can pass on. You can 'subscribe' to specific tags of interest in Delicious. This action sends all your subscriptions directly to your Delicious home page. Alternatively, you can create an RSS (really simple syndication) feed in an RSS reader to automatically update whenever new articles with the subscribed tag are bookmarked. You can also create an RSS feed of any user's bookmarks.

How to get started?

You can sign up for an account at www.delicious.com/ or you can sign in with your Yahoo user name and password without having to create an account.

How is it useful for researchers and for developing research skills?

- To develop and maintain a web-based library of bookmarks that can be accessed from anywhere and can be shared with your supervision team and other colleagues
- To keep up-to-date with resources that are being bookmarked by others
- Tagging (specifying the tags) the bookmarks helps to identify the keywords resulting in a better understanding of the essence and the significance of that resource

Resources

Delicious: Top 100 tools index, <http://www.c4lpt.co.uk/Top100Tools/delicious.html>

How to use Delicious: the king of social bookmarking,
<http://www.socialmediaexaminer.com/how-to-use-delicious-social-bookmarking/>

Setting up Delicious for researching on the web,
<http://gatheringinlight.com/2006/11/03/setting-up-delicious-for-researching-the-web/>

SEO link building using Delicious, <http://www.wilsonweb.com/linking/delicious-link-building.htm>

Tips for using Delicious in (doctoral) research, <http://gatheringinlight.com/2008/03/17/tips-for-using-delicious-in-doctoral-research/>

Using Delicious for research sharing and website dynamism,
<http://www.communityorganizer20.com/2009/08/10/using-delicious-for-research-sharing-and-website-dynamism/>

Using Delicious in education, <http://www.scribd.com/doc/212002/Using-delicious-In-Education>

Also see other social bookmarking tools: Diigo <http://www.diigo.com/>, Connotea <http://www.connotea.org/>, citeulike <http://www.citeulike.org/>

Facebook for researchers

What is Facebook?

Facebook (www.facebook.com) is a social networking environment that helps to connect with people.

How to get started?

One can set up an account on the Facebook site by specifying a preferred email address and a password.

How is it useful for researchers and for developing research skills?

As a collaborative space to share with fellow researchers:

- to discuss ideas and to carry out debates
- to share web links and news
- to record reflections on research or events attended
- to publicise and promote research
- to receive early feedback on research ideas
- to recruit participants for research

To set up research groups, for example, The Virtual Worlds Education Roundtable www.facebook.com/groups/159154226946/

- to advertise events to the members of the group
- to discuss research topics
- to become aware of other researchers with similar research interests

To set up conference or workshop pages, for example, the CHI 2012 conference www.facebook.com/CHI2012 alongside the main conference website <http://chi2012.acm.org/>

- to give reminders of deadlines for paper submission
- as a platform for socialisation and networking before the event

To set up a community page on a particular research topic or methodology, for example, Community Capitals Framework, www.facebook.com/pages/Community-Capitals-Framework/163797760307116 for dissemination, sharing of experiences and alongside the website www.soc.iastate.edu/staff/cflora/ncrcrd/capitals.html

To link with other tools: Flickr, Twitter, SlideShare, YouTube

Resources

Amerson, R. (2011). Facebook: A tool for Nursing Education Research, Journal of Nursing Education, vol. 50, no. 7, pp. 414-416.

[this paper discusses the role of Facebook in recruiting participants for research]

Facebook for educators, <http://facebookforeducators.org/groups>

Tips to use Facebook groups to promote our research and artistic work, <http://tinyurl.com/7zzgnyf>

Waters, J. D., Burnett, E., Lamm, A. and Lucas, J. (2009). Engaging stakeholders through social networking: How non-profit organisations are using Facebook. *Public Relations Review*, vol. 35, pp. 102-106.

Williams, J.H. (2011). Use of Social Media to Communicate Sport Science Research. *International Journal of Sports Science and Coaching*, vol. 6, no. 2, pp. 295-300.

[discusses the usefulness of Facebook fan page for communicating sports science to practitioners]

Also see Google+, <http://www.google.com/+learnmore/> and A recipe for success: why Google+ will work for Higher Education, <http://blogs.lse.ac.uk/impactofsocialsciences/2011/07/21/why-google-will-work-for-higher-ed/>

A postgraduate researcher discusses her use of Facebook:

Facebook is like a pin board... you can post things and let people see it and respond to it when they like... I frequently use it to announce events, conferences and request for participants for my research...

An early career researcher discusses how she has set up a Facebook page for the special interest group in her research area that she will be hosting at a forthcoming conference:

I have set up a Facebook page for the SIG that we are hosting at the XX conference. It was very easy to set it up; you don't need an [Facebook] account to see the page but you need an account to set up the page. A Facebook page is like a blog... you can publicise the event and have discussions just as you would have in a blog...

Google Scholar for researchers

What is Google Scholar?

Google Scholar is a freely accessible web-based search engine for scholarly literature. It allows researchers to locate a wide array of scholarly literature, including scholarly journals, abstracts, peer-reviewed articles, theses, dissertations, conference proceedings, books, pre-prints, Power Point presentations and technical reports from universities, academic institutions, professional societies, research groups, and preprint repositories around the world. It has become a gateway to accessing scholarly information on the Web.

How to get started?

The website has a simple and an advanced search engine <http://scholar.google.co.uk/> that enable you to search across the Google Scholar collections. There is no need to set up an account.

How is it useful for researchers and for developing research skills?

- As a search engine which could provide some useful pointers to resources, including authors and journals in the research area, before conducting comprehensive research in the digital libraries. It provides international coverage of journals and scholarly resources
- The advanced search enables searching by author, publication name, dates, subject areas, and in legal journals and patents too
- The 'cited by' feature allows researchers to trace interconnections among authors citing articles on the same topic and to determine the frequency with which others cite a specific article
- Since several authors post preprints to their websites much earlier than the articles appear in printed journals, researchers may find more current information than they would through commercial databases
- It allows researchers to conduct broad-based, comprehensive, and multidisciplinary searches to discover hidden subject relationships on the web
- It can help to track citations to your publications and to create a public profile that appears in Google Scholar when someone searches for your name; see for example: <http://scholar.google.at/citations?user=58IUjUwAAAAJ&hl=en>, a profile of an academic in Google Scholar

Resources

Wow – Google Scholar 'Updates' a big step forward in sifting through the scientific literature, <http://blogs.lse.ac.uk/impactofsocialsciences/2012/08/13/google-scholar-updates-step-forward/>

Younger, P. (2010). Using Google Scholar to conduct a literature search. *Nursing Standard*, vol. 24, no. 45, pp. 40-46.

An early career researcher discusses her use of Google Scholar:

While conducting a literature survey, instead of first going to the library's digital databases, I use some keywords and search in Google Scholar... that gives me a good idea of the authors, research groups and even journals in that area... even I can't download some of the papers from Google Scholar, it does not matter...as with the information I get, it then becomes easier for me to search for papers in the library.

iTunesU for researchers

What is iTunesU?

iTunesU (www.apple.com/education/itunes-u/) is a powerful distribution system for everything from lectures to language lessons, films to labs, audio-books to tours. The content is in different forms: audio, video, slideshows, PDFs and films. It is an innovative way to get educational content into the hands of postgraduate researchers. There are over 800 universities with active iTunesU sites, and most of these institutions, including Stanford, Yale, MIT and Oxford, distribute their content publicly. For example, The UK's Open University's offerings are at: www.open.ac.uk/itunes/

How to get started?

Once you have iTunes installed (a free download from www.apple.com/itunes/) on your computer, then you will find iTunesU as one of the menu items within iTunes. There are video tutorials on www.apple.com/itunes/how-to/ on how to install iTunes. On iPodTouch, iPhone, or iPad, just tap 'More' in the iTunes application and you'll see iTunesU. From there you can browse and download content over both cellular and Wi-Fi networks. You can browse iTunesU resources one at a time, or subscribe to entire courses and have new items downloaded automatically as soon as they become available.

How is it useful for researchers and for developing research skills?

- Access to expert lectures, research talks, and demonstrations
- Awareness of related research and associated researchers in other universities world-wide
- Learning presentation skills; learning critical thinking skills
- Access to skills-based podcasts and videos such as IT-skills training or entrepreneurial skills
- Access to language-learning resources
- For inspiration
- Learning on the move

Resources

iTunesU App for Apple's mobile devices, <http://itunes.apple.com/us/app/itunes-u/id490217893?mt=8>

Germany, L. (2011). iTunesU: an opportunity for students, Campus-wide Information Systems, vol. 28, no. 3, pp. 175-182. Available at: <http://www.emeraldinsight.com/journals.htm?articleid=1937606>

The Open University on iTunesU, <http://www.open.edu/itunes/getting-started>

Also see Ted Talks, <http://www.ted.com/> Ted Talks on Android-based mobile devices, <https://market.android.com/details?id=com.gnudroid.tedtalks&hl=en> Ted conferences on Apple's mobile devices, <http://itunes.apple.com/gb/app/ted/id376183339?mt=8>

LinkedIn for researchers

What is LinkedIn?

LinkedIn (www.linkedin.com/) is a professional networking site. It allows you to create a profile that summarises your professional expertise and accomplishments. It helps to set up connections with other professionals, and the network grows with time. The network consists of your connections, your connections' connections, and the people they know, linking you to a vast number of qualified professionals and experts.

How to get started?

LinkedIn requires an email address and a password to set up an account. You can set up a profile comprising your work experience, educational background, and links to personal websites and portfolios. You can also specify your research interests and list any honours and awards. The site enables you to set up the motivations/options for professional networking such as consulting offers, expertise requests, reference requests, getting back in touch, or career opportunities, etc.

How is it useful for researchers and for developing research skills?

- For creating a publically-available professional profile displaying experience and specialities; link to the personal website and portfolio
- To keep connections with past colleagues and to build professional relationships
- For promoting visibility for jobs, consulting opportunities and collaborations
- To receive from and provide recommendations to connections
- Establish a community by forming a group on LinkedIn dedicated to a specific topic, and then invite others to join that group to debate, discuss and learn from one another. Such a group is also an opportunity to demonstrate your own knowledge and expertise by sharing what you know
- Join groups and engage in discussions, connect with a community of researchers with similar research interests, share ideas and develop a personal voice
- To publicise and promote research
- To receive early feedback on research ideas
- To network for funding and employment opportunities
- To recruit participants for research
- Connect the Twitter feed to the profile page to display recent tweets, link to SlideShare presentations

Resources

10 tips for effectively using your LinkedIn status update,

<http://www.careerealism.com/linkedin-10-tips-effectively-status-update/>

LinkedIn: how to use LinkedIn, <http://jobsearch.about.com/od/networking/a/linkedin2.htm>

LinkedIn App for Apple's mobile devices,

<http://itunes.apple.com/gb/app/linkedin/id288429040?mt=8> and for Android-based devices
<https://market.android.com/details?id=com.linkedin.android&hl=en>

Why use LinkedIn? Newcastle researchers blog,
<http://newcastleresearchers.wordpress.com/2010/11/18/why-use-linkedin/>

Also see, Academia.edu, <http://academia.edu/>, a networking platform for academics and researchers

A postgraduate researcher discusses his use of LinkedIn and Facebook:

I use LinkedIn for networking with other researchers and colleagues (past and present). I use Facebook to keep in touch with friends and family members and also colleagues who happen to be friends.

Mendeley for researchers

What is Mendeley?

Mendeley (www.mendeley.com/) is a free research management tool for desktop and the web. Mendeley indexes and organises all of your PDF documents and research papers into your own personal digital bibliography. It also looks up PubMed, CrossRef, DOIs and other related document details automatically. The drag-and-drop functionality makes populating your library quick and easy. The Web Importer (which can be bookmarked, www.mendeley.com/import/) allows you to quickly and easily import papers from resources such as Google Scholar, ACM, IEEE and many more at the click of a button.

Mendeley imports and exports most important bibliography data formats (supported by, for example, BibText, EndNote) and syncs with several browser-based citation-capturing tools (CiteULike, Zotero), so you can keep your existing workflow and benefit from each tool's strengths. Mendeley can be used to directly insert citations in MS Word and OpenOffice.org. Mendeley can be set up to be kept private, or to share with specified collaborators, or to share publicly. Mendeley combines bibliographic management with web-based collaborative working, allowing groups easy access to each other's papers.

How to get started?

Mendeley can be installed from: www.mendeley.com/ This is another useful resource: www.slideshare.net/RSLBiochem/introduction-to-mendeley to get started with Mendeley. Also, see: www.scribd.com/doc/82053472/Mendeley-Workshop-Presentation

How is it useful for researchers and for developing research skills?

- To manage and annotate research papers
- To share research resources with other members of a project team
- To collaborate with fellow researchers through shared and public collection of resources
- To make notes in PDFs using sticky notes and by highlighting the text, and these annotated papers can be shared with colleagues
- To mark the papers as read/unread to stay at the top of one's reading list, and 'star' papers to mark as favourites
- To generate a bibliography for articles or reports in more than 1,000 citation styles

Resources

Zaugg, H., West, R. E., Tateishi, I., Randall, D. L. (2011). Mendeley: Creating communities of scholarly inquiry through research collaboration TechTrends: Linking Research & Practice to Improve Learning, vol. 55, Issue 1, pp. 32-36.

Reiswig, J. (2010). Mendeley, Journal of the Medical Library Association, vol. 98, issue 2, pp. 193-194.

Curran, M. (2011). Mendeley www.mendeley.com/, Technical Services Quarterly, vol. 28, no. 4, pp. 454-456.

Mendeley: The future to managing science papers, <http://www.astrobetter.com/mendeley-the-future-to-managing-science-papers/>

My experience with Mendeley,
http://blogs.warwick.ac.uk/researchexchange/entry/reference_mangement_software/

For a comparison amongst various bibliographic management systems, such as EndNote, RefWorks, Zotero and Mendeley, refer to this paper: Hensley, M. K. (2011). Citation Management Software: Features and Futures, Reference & User Services Quarterly, vol. 50, no. 3, pp. 204-208. Also, this webpage compares the various bibliographic reference management systems: <http://www.mendeley.com/compare-mendeley/>

Search results for 'social media' in Mendeley

The screenshot shows the Mendeley search results page for the query 'social media'. The page features a navigation bar with links to 'Get Mendeley', 'What is Mendeley?', 'Papers', and 'Groups'. A search bar at the top right contains the text 'social media'. Below the navigation bar, the 'Papers' section is highlighted, showing 'In this catalog: 34,235,271 papers'. A 'Create a free account' button is visible in the top right corner. The search results are displayed in a list format, with each entry including a title, author information, a brief description, and a 'Save reference to library' button. The results are numbered 1 to 20 of 20,814. A 'Refine search' section on the right allows users to filter results by 'Open Access articles only'.

Search Results for 'social media' in Mendeley

Results 1 - 20 of 20,814

Social Media
Wikipedia in *AHP Journal Association for Healthcare Philanthropy* (2011)
Background: **Social media** is a common term for web-based applications that offer a way to disseminate information to a targeted audience in real time. In the current market, many businesses are utilizing it to...

Social media and social reality
W Reynolds, M Weber, R Farber, C Corley, A Cowell, M Gregory in *Intelligence and Security Informatics ISI 2010 IEEE International Conference on* (2010)
Social Media provide an exciting and novel view into **social** phenomena. The vast amounts of data that can be gathered from the Internet coupled with massively parallel supercomputers such as the Cray...

Social media and social movements
Jonny Jones in *International Socialism* (2010)

Social Media and Social Reality
William N Reynolds, Maria S Weber, Robert M Farber, Courtney Corley, J Andrew, Michelle Gregory in *Media* (2008)
Observa-se que os especialistas fazem circular saberes dotados de maior legitimidade **social** identificados com o cientificismo característico do período. Por outro lado, os professores, em suas escritas, expressam um saber técnico...

Social Media and Social Companies
F Van Der Reep in *Media* (2010)

Social Media and Sales Social Media and Sales Social Media and Sales
The Emanon Group, Social Media, Emanon Group in *Source* (2010)

SOCIAL MEDIA Sales and Social Media : NO ONE ' S SOCIAL MEDIA
By Marshall Lager in *World* (2009)

RSS feeds for researchers


What is an RSS feed?

RSS (Really Simple Syndication) or news feeds allow you to see when websites have added new content. You can get the latest blog posts, news items, journal alerts, and videos in one place, as soon as they are published, without having to visit the websites you have taken the feed from.

How to get started?

The newsreader software checks the feeds. For more information on RSS readers, please see www.bbc.co.uk/news/10628494.

There are many different versions, some of which are accessed using a browser, and some of which are downloadable applications. Browser-based news readers enable you to catch up with the RSS feed subscriptions from any computer, whereas downloadable applications let you store them on the computer, in the same way that you can either download your e-mail using Outlook, or keep it in a web-based service like Hotmail. Once you have chosen a RSS feed reader (e.g. Google Reader www.google.com/reader/) all you have to do is to decide what content you want it to receive. For example, if you would like the latest podcast on the Guardian's Technology site www.guardian.co.uk/technology/series/techweekly, simply

visit this site and you will notice an orange RSS button:  If you click on the RSS button you can subscribe to the feed in various ways, including by dragging the URL of the feed into your news reader or by cutting and pasting the same URL into a new feed in your news reader. Most sites that offer feeds use a similar orange button, but some may just have a normal web link.

How is it useful for researchers and for developing research skills?

- Monitoring journal content pages
- Checking conference updates
- Receiving updates from relevant blogs
- Receiving updates from websites of related research projects
- Monitoring funding opportunities
- Offers a means of filtering and managing information: for example, to create search feeds to monitor search engines for specific keywords associated with a research area
- It is not as social as Twitter, but when used to monitor other researchers' blogs or a collaborative project wiki, it can facilitate an exchange of comments and feedback across a community

Resources

Best free RSS Reader-Aggregator, <http://www.techsupportalert.com/best-free-rss-reader-aggregator.htm>

Keeping up to date with information, RSS feeds, <http://surreyresearchers.wordpress.com/2011/04/05/keeping-up-to-date-with-information-rss-feeds/>

RSS for researchers: keeping ahead in your field, <http://www.readytoresearch.ac.uk/use-new-technologies-research/rss-researchers-keeping-ahead-your-field?external=1&size=1217>

Top 10 RSS feed readers, <http://www.nirmaltv.com/2007/07/27/top-10-rss-feed-readers/>

What is RSS? <http://www.vitae.ac.uk/researchers/315451-332871/What-is-RSS.html>

Second Life for researchers

What is Second Life?

Second Life (www.secondlife.com) is a three-dimensional (3D) virtual world in which users interact via their graphical self-representations known as 'avatars'. A 3D virtual world can offer a sense of social presence via the avatars, and a sense of place in a 3D world. The users experience others as being present in the same environment even though they may be geographically distributed. Users converse in real-time through text-based chat, instant messaging, gestures, and audio. The content and narrative in Second Life is constructed and owned by the residents (users) of Second Life. Linden Labs, the company that created Second Life, provides the infrastructure, hardware and software to support it.

How to get started?

The Second Life software can be downloaded from <http://secondlife.com/support/downloads/> and supports various operating systems. The user has to choose an avatar name and password to register for free in order to interact within the virtual world. A quick start guide for Second Life is available on this link: <http://secondlife.com/support/quickstart/basic>

How is it useful for researchers and for developing research skills?

- As a meeting space for supervision meetings
- As a place for socialisation to meet postgraduate researchers from other institutions
- For attending events and conferences
- For displaying posters and 3D exhibits related to the research project and receiving feedback from a wider community of educators and postgraduate researchers within Second Life
- For recruiting participants
- For conducting pilot interview sessions before conducting sessions in the real-world
- For conducting interviews with remote participants
- For conducting focus groups and workshops with remote participants
- For practising for presentations, mock-viva
- For language learning

Resources

Business in a virtual world, <http://secondlife.com/destinations/business>

Minocha, S. and Morse, D. (2010). Supporting distributed team working in 3D virtual worlds: A case study in Second Life. *Interactive Technology and Smart Education*, vol. 7, no. 4, pp. 200–219, <http://oro.open.ac.uk/23512/>

Rapanotti, Lucia; Minocha, Shailey; Barroca, Leonor; Boulos, Maged N. Kamel and Morse, David R. (2011). *3D virtual worlds in higher education*. In: Olofsson, Anders D. and Lindberg, J. Ola eds. *Informed Design of Educational Technologies in Higher Education: Enhanced Learning and Teaching*. IGI Global, pp. 212–240, <http://oro.open.ac.uk/25204/>

A meeting in Second Life



Sense-making tools for researchers

What is Cohere?

Cohere (<http://cohere.open.ac.uk/>) is a web-based visual knowledge mapping tool to create, connect and share ideas. Cohere is designed to help answer critical questions such as: "Who supports this idea?", "Show me examples of that phenomenon", "What are the limitations of this methodology?"

Cohere enables you to: record ideas, and add relevant websites; make meaningful connections between ideas; visualise the emerging network of your ideas, and the world's, in different ways; import social bookmark feeds from tools like Delicious, ready for connecting; and share maps as web links, or embed them in other websites. As these ideas, connections and websites grow in number, Cohere generates views of these, and helps you to view and filter them in various ways. You can choose to make your work public to share ideas with others, and Cohere provides ways to discover other people and their ideas that may be of interest.

This website (<http://cohere.open.ac.uk/#screencast>) has screencasts related to Cohere, and there is a quick start guide to Cohere at: <http://openlearn.open.ac.uk/course/view.php?id=3362>. You can sign up for Cohere on this website: <http://cohere.open.ac.uk/register.php>

What is Compendium?

Compendium (<http://compendium.open.ac.uk/institute/>) is a knowledge map software tool for visualising information as networks. Knowledge mapping enables fragments of information to be linked in a map in order to make information easier to access. Compendium allows you to manage, share, analyse and track information and ideas, and the connections between them. Many people use Compendium to manage their personal digital information resources, since you can drag-and-drop into Compendium any document, website, email, image, etc., organise them visually, and then connect ideas, arguments and decisions to them. Compendium is a 'glue' that allows you to pool and make sense of disparate material that would otherwise remain fragmented in different software applications.

Compendium can also facilitate collective sense making and improve communication between disparate communities tackling ill-structured problems.

Compendium can be downloaded from <http://compendium.open.ac.uk/institute/download/download.htm> and is installed as a personal offline tool. A quick start guide to Compendium can be found at <http://openlearn.open.ac.uk/course/view.php?id=2824>.

Skype for researchers

What is Skype?

Skype (www.skype.com/intl/en-gb/home) is a freely-available software application that allows free audio and video calls and text chats between registered Skype users anywhere in the world. Skype is available for Windows, Mac OS X, and Linux users as well as on many models of mobile devices and even Sony's PSP games console. All communications occur over a standard Internet connection. Free conference calls can be set up enabling three or more persons to come together for a meeting. Skype is peer-to-peer software; unlike other Voice over Internet Protocol (VoIP) services, Skype does not run on servers, but makes use of background processing on computers running Skype software. There is no centralised application or directory of users; instead information is distributed throughout Skype users' computers.

How to get started?

The Skype software can be downloaded from this link: www.skype.com/intl/en-gb/get-skype/
You have to choose a Skype name/id and a password.

How is it useful for researchers and for developing research skills?

- For supervision meetings when the postgraduate researcher and supervisors are geographically- distributed
- To give a sense of presence of others as it indicates who in the contact list is online; so could be used for asking a quick query from an advisor or for informal interactions via voice or text chat with other postgraduate researchers who are online
- For practising presentations (in audio and video) with supervisors before the event; screen sharing is also available for some operating systems
- For conducting research interviews with remote participants
- For conducting online focus groups or workshops with remote participants

Resources

Also see Blackboard collaborate <http://try.bbcollaborate.com/trial/register.go> which offers a free three-person virtual room after a free trial, Googlechat, <http://www.google.com/talk/>, Zipcast, <http://www.slideshare.net/zipcast/>⁵², Second Life, <http://www.secondlife.com/>
Audacity <http://audacity.sourceforge.net/> for recording and editing sounds

Just how safe is Skype: <http://www.thetelecomblog.com/2011/03/17/just-how-safe-is-skype/>

⁵² SlideShare moves into virtual meetings with ZipCast, <http://techcrunch.com/2011/02/16/slideshare-zipcast/>; also see <http://blog.slideshare.net/2011/02/16/announcing-zipcast-changing-the-way-the-world-conducts-web-meetings/>

A postgraduate researcher discusses his use of Skype:

I prefer Skype to phone as with the video you get some sense of the body language, the behavior... it just gives you more feedback and so you can adjust accordingly... even though phone is much easier... the sense of presence is less with the phone...

A postgraduate researcher discusses his use of Skype:

It is very difficult to carry out complex discussions by email.. it becomes cumbersome.. so I prefer Skype as there is an immediacy of reactions; the synchronous nature of the medium is helpful in collaborations...

SlideShare for researchers

What is SlideShare?

SlideShare (www.slideshare.net/) is a site where you can host your presentations, documents and professional videos and share them with others. Presentations can be linked to at the site itself or embedded in a web page. You can also synchronise an MP3 audio file (podcast) with the slideset to create a slidecast – a more powerful way of distributing presentations or tutorials. You can embed YouTube videos in presentations. SlideShare is also a resource site for presentations, documents and videos.

How to get started?

You can set up a free account on the website: www.slideshare.net/signup

How is it useful for researchers and for developing research skills?

- As an online repository for your presentations which can be referred to in meetings, discussions, brainstorming, etc.
- To share with the community: to be able to upload portfolios, resume, conference talks, PDFs, presentations, etc.
- To receive feedback from the viewers
- To publicise and promote research
- To receive feedback on research ideas
- To network for funding and employment opportunities
- Join groups to connect with SlideShare members who share your interests
- To share presentations and documents in project websites, with your LinkedIn network (www.linkedin.com/) or on Facebook (www.facebook.com/)
- To be able to view presentations and other documents from other researchers' online repositories, and to be able to comment on them

Resources

25 research things 2010, 14th Thing – SlideShare and Prezi,
<http://25researchthings2010.wordpress.com/tag/slideshare/>

SlideShare: The YouTube of Power Point, <http://ezinearticles.com/?SlideShare---The-YouTube-of-PowerPoint&id=3985621>

SlideShare for research, <http://www.hallicious.com/2010/01/slideshare-for-research/>

Slideshare tool to enhance research,
http://blogs.warwick.ac.uk/researchexchange/entry/slideshare_tool_to/

Also see Prezi, <http://prezi.com/hgjm18z36h75/why-should-you-move-beyond-slides/>

A postgraduate researcher discusses her use of Slideshare:

... Earlier my blog was the main source of dissemination, although I had set it up for my own personal good that I would get into the habit of writing... but I have recently come to know about SlideShare and now I am posting my presentations on Slideshare as a way to disseminate my research...

Twitter for researchers

What is Twitter?

Twitter (www.twitter.com/) is a micro-blogging service that allows users to post and read 140-character status messages. These short bursts of information, called 'tweets', can be anything from what someone had for breakfast to feedback on a live event such as an academic conference. Twitter users use a hashtag (#) to describe (or 'tag', in Web 2.0 terminology) tweets with a subject. A hashtag can be seen as metadata, describing the content of a tweet; it enables users to search the subject of a tweet, rather than the specific content. So while a search for 'sociology' could turn up a fair number of tweets from postgraduate researchers broadcasting that they are in sociology class or doing sociology homework, a search for #sociology should only reveal tweets in which the user has chosen to identify the subject of the tweet as a whole as sociology. Most conferences now announce a hashtag to describe tweets referring to that conference. Twitter has the potential as a news delivery system, or for gathering viewpoints on a current topic, or to connect people with similar interests.

"If a social service like Facebook has entrenched its users in a world of people they already know in some way, Twitter, often as its best, connects strangers through ideas" (Ovadia, 2009).

How to get started?

You can sign up for Twitter on this site <https://twitter.com/signup>

How is it useful for researchers and for developing research skills?

- To publicise research, and to share ideas, news, breakthroughs
- For soliciting comments on a topic
- For informing others about a new blog-post
- For connecting with others who have similar research interests
- It is also useful for building and maintaining your face-to-face networks: for example, to keep contacts up to date with your latest achievements, and in a way that is for some much more natural than the email.
- It can introduce you to new people with shared interests who you might otherwise never have met, even if you were at the same conference.
- For writing short reflective notes during an event that you are attending, which is also an opportunity to enhance your network
- To search for specific ideas using keyword searches (using hash-tags) on Twitter. For example, this can help to reveal both what topics are being discussed and what Twitter users are actually saying about the topic
- To keep up-to-date with research funding opportunities, calls for papers, projects, etc., as a number of scientific institutions are using Twitter to broadcast news and calls
- To participate in discussions with other postgraduate researchers using the hash-tag: #phdchat (please see <http://thesiswhisperer.com/join-the-thesis-whisperer-on-phdchat/>) or #ECR (please see <http://ecrchat.wordpress.com/>)

Resources

10 ways researchers can use Twitter, <http://www.networkedresearcher.co.uk/2011/08/03/10-ways-researchers-can-use-twitter/>

100 serious Twitter tips for academics, <http://www.bestcollegesonline.com/blog/2009/07/21/100-serious-twitter-tips-for-academics/>

10 commandments of Twitter for academics, <http://chronicle.com/article/10-Commandments-of-Twitter-for/131813/>

A guide to using Twitter in university research, teaching, and impact activities, <http://blogs.lse.ac.uk/impactofsocialsciences/2011/09/29/twitter-guide/>

Getting started on Twitter? Help is at hand, <http://socialmedia4us.wordpress.com/2012/08/17/getting-started-on-twitter-help-is-at-hand/>

Eysenbach, G. (2011). Can Tweets Predict Citations? Metrics of Social Impact Based on Twitter and Correlation with Traditional Metrics of Scientific Impact, Journal of Medical Internet Research, vol. 3, no. 4. Available at: <http://www.jmir.org/2011/4/e123/>

Letierce, J. Passant, A., Decker, S. and Breslin, J. G. (2010) Understanding how Twitter is used to spread scientific messages. Web Science Conference 2010, April 26-27, 2010, Raleigh, NC, USA. Available at: http://journal.webscience.org/314/2/webosci10_submission_79.pdf

Letierce, J., Passant, A., Breslin, J. G. and Decker, S. (2010). Using Twitter during an Academic Conference: The #iswc2009 Use-Case, Proceedings of the Fourth International AAAI Conference on Weblogs and Social Media, pp. 279-282. Available at: <http://www.aaai.org/ocs/index.php/ICWSM/ICWSM10/paper/viewFile/1523/1877>

Nine resources for academics getting started with Twitter, <http://markcarrigan.net/2012/04/19/nine-resources-for-academics-getting-started-with-twitter/>

Microblogging – Guide to Twitter, <http://www.vitae.ac.uk/CMS/files/upload/Guide-to-Twitter-February-2012.pdf>

Modern Language Association, How do I cite a tweet?, http://www.mla.org/style/handbook/faq/cite_a_tweet

Reinhardt, W., Ebner, M., Beham, G., and Costa, C. (2009). How People are using Twitter during Conferences. In Creativity and Innovation Competencies on the Web, Hornung-Prähauser, V., Luckmann, M. (Ed.) Proceeding of 5. EduMedia conference, pp. 145-156. Available at: http://lamp.tu-graz.ac.at/~i203/ebner/publication/09_edumedia.pdf

Ovadia, S. (2009). Exploring the Potential of Twitter as a Research Tool, Behavioral & Social Sciences Librarian, vol. 28, no. 4, pp.202-205.

Science and the Media: Why every lab should tweet, <http://manoa-hawaii.academia.edu/ChristieWilcox/Talks/55492/Science_and_the_Media_Why_Every_Lab_Should_Tweet>

The Twitter Guide Book, <http://mashable.com/guidebook/twitter/>

Top Twitter Tips for Academics, <http://www.lwec.org.uk/sites/default/files/TwitterTips.pdf>

An postgraduate researcher mentions how she participates on the weekly discussions of postgraduate researchers on Twitter who use the hash-tag #phdchat:

Even when I have completed my PhD, I still dip into the discussions on Wednesday in the #phdchat groups; I find the discussions stimulating and there are always new things coming up...

Top tweets for the hashtag #vitae12

Twitter / Search - #vitae12

Have an account? Sign in

Search results

#vitae12

Search

Get instant updates on #vitae12
Join Twitter today

Full name

Email

Password

Sign up

Tweets

People

Worldwide trends - Change

#Mis10PelículasFavoritaSon

P.Y.T

#YouKnowItsARecession

Stop Selena Hate

Alexis HK

Vismara

#TakeMeOut

We Love Leona Lewis

Total Eclipse Of The Heart

Murray State

twitter

© 2012 Twitter About Help Terms Privacy
Blog Status Apps Resources Jobs
Advertisers Businesses Media Developers

Tweets Top / All

Vitae @Vitae_news 2 Mar
RT @GdnHigherEd: RT @tennievideler: New blog post: Science Communication Conference 2012 - bursaries available bit.ly/wZm2Af #vitae12

Vitae NW Hub @vitae_nwhub 1 Mar
Revised conditions of use for the RDF now online bit.ly/ynRk2n #vitae12

Researchers@Ed @ResearchersAtEd 1 Mar
RT @Vitae_news: We have a few updates on the Researcher Development Framework. Check it out! bit.ly/yqU58D #vitae12 #lovehs #highered

Inst HealthSciences @HealthSciUoMan 1 Mar
RT @Vitae_news: How to remember the keypoints from your #academic reading? bit.ly/wOtSgC Add your tips! #vitae12

Vitae NW Hub @vitae_nwhub 1 Mar
RT @Vitae_news: How to remember the keypoints from your #academic reading? bit.ly/wOtSgC Add your tips! #vitae12

Vitae @Vitae_news 29 Feb
Vitae weekly on twitter bit.ly/v8nGa5 top stories via @cityldc @Eingang @GdnHigherEd @rjhogue @Rich_Boulton #dr12vitae #vitae12

John Igoo @johnigooek 29 Feb
80 institutions to date have received the European HR Excellence in Research award. bit.ly/wWySL2 #vitae12 #swwgpc

John Igoo @johnigooek 29 Feb
Bill Rammell: Approximately 150.6m students globally, a 53% increase since the millenium #swwgpc #vitae12

Laura Hodsdon @ResStaffOxford 27 Feb
My #PIRLS11 report is FINALLY a PDF - no more fiddling with it now! #vitae12

Vitae @Vitae_news 27 Feb
RT @GdnHigherEd: . @Vitae_news have posted a neat little video on our Facebook page. Thanks guys! on.fb.me/zEdC8z #vitae12

You've reached the end of the Top Tweets for #vitae12.
[View all Tweets.](#)

Wiki for researchers

What is a wiki?

A wiki is a collaborative website: a page or collection of web pages designed to enable anyone who accesses it to contribute or modify content. Wikis support hyperlinks and have simple text syntax for creating new pages and cross-links between internal pages. The user only needs access to a web browser. Wikis can be useful as shared social spaces for team members who work remotely. They can be used as collaborative authoring tools. There is one document to work from rather than multiple copies circulating around the team. Contributing authors can percolate their ideas longer and include more ideas in the draft as a result of more frequent editing sessions. Access can be controlled; wikis can be private to an individual or group and they can be read-only for specified groups.

How to get started?

There are a number of wiki software packages available on the web: e.g. PBworks⁵³ (<http://pbworks.com/>), Tiddly wiki (www.tiddlywiki.com/), MoinMoin wiki (<http://moinmo.in/>), Media wiki (www.mediawiki.org/wiki/MediaWiki), wikispaces (www.wikispaces.com/)

How is it useful for researchers and for developing research skills?

As a password-protected space for a postgraduate researcher and supervision team which can be used:

- As a document repository for agenda and minutes of supervision meetings; links to papers related to literature review
- As a reflective space
- for communicating progress reports to the supervision team
- as a space to write drafts of papers and reports
- for collaborative authoring of papers and reports
- As an external website to publicise research and publications
- As a collaborative space for groups of researchers

As a space for a research group to build a community, for example, a wiki on exploring virtual worlds and education and training (www.jokaydiagrid.com/2009/12/jokaydia-virtual-worlds-wiki/)

A postgraduate researcher discusses his use of wiki:

...we use <...> repository to share software code among the project team and we also use a project wiki to store project documentation i.e. software code, meeting minutes and presentations, project requirements, outcomes of studies, paper submissions, discussion and decisions in the project team.

⁵³ PBwiki drops the wiki, becomes PBworks, (<http://techcrunch.com/2009/04/28/pbwiki-drops-the-wiki-becomes-pbworks/#comment-129670>) [accessed 17 August 2012]

Wiki set by a researcher to share and collate experiences of conducting research in virtual worlds

The screenshot shows a web browser window displaying a Wikispaces wiki. The browser's address bar shows the URL 'conducting-research-in-virtual-worlds...'. The wiki's header includes a green navigation bar with a 'conducting-' logo, a yellow banner stating 'You are not a member of this wiki. [Join now](#) [Dismiss](#)', and user links for 'guest', 'Join', 'Help', and 'Sign In'.

The left sidebar contains a 'Wiki Home' section with icons for 'Pages and Files', 'Members', 'Recent Changes', and 'Manage Wiki', along with a 'Search Wiki' box. Below this is an 'All Pages' list including 'home', 'Books', 'Email-lists', 'Ethical considerations', 'Events and meetings', 'Recruitment Strategies', 'Research materials', 'Research papers', and 'Technologies for recording'.

The main content area is titled 'home' and features a 'Conducting research in virtual worlds' page. The page content includes a welcome message from Dr. Shailey Minocha, a list of 'Contents of the wiki' with links to various topics, and a section for 'Colleagues who have shared ideas and resources' listing contributors like Mark Childs, Simon Evans, and Christopher Hardy.

The footer of the wiki page contains a navigation menu (Help, About, Blog, Pricing, Privacy, Terms, Support, Upgrade), a Creative Commons Attribution-Share-Alike 3.0 license notice, and a copyright statement for Tangient LLC.

Wordle for researchers

What is Wordle?

Wordle www.wordle.net is a web-based tool for visualising text by generating 'word clouds' from text that the user provides. Wordle creates tag-cloud-like displays that use typography, colour, and composition to indicate frequency and distribution of terms in the text. The process for creating Wordles is straightforward: users go to a web page, paste a piece of text into a text area, hit a button, and get a word cloud. The initial cloud is generated with randomised visual parameters. Users may customise the look of their creation by choosing different fonts, layouts, and colour schemes. The Wordle site supports sharing in a number of ways: users may save a new Wordle to a gallery, giving it a unique URL and allowing others to see it in a 'browse' page. A 'print' option generates a high-resolution version of the visualisation. To provide legal protection for sharing, every Wordle is licensed under a Creative Commons Attribution license that allows free usage for commercial or non-commercial purposes. Wordle visuals show the relative importance of the topics/terms (frequency) and help in stimulating discussions, or for comparing 'before' and 'after' situations.

How to get started?

Wordle's website is www.wordle.net. Also refer to the resources listed below.

How is it useful for researchers and for developing research skills?

- Wordle clouds can help to communicate ideas and concepts
- Wordle does not support deep sense-making, but it can help in getting a 'feel' of significant themes in the data
- The visual depth of Wordles attracts the eye and keeps user attention for longer periods; a condition that is paramount to data analysis
- Wordle clouds can help catch the attention of the audience in a poster session at an event or in an exhibition
- It helps in social visualisation of information, that is conveying prominence of some information in a non-scientific form for civic engagement, brainstorming, and workshops to engage the participants (participants could be asked to generate Wordles)
- Wordle clouds can help in socialisation in a focus group or for 'jogging' memories at the start of a session.

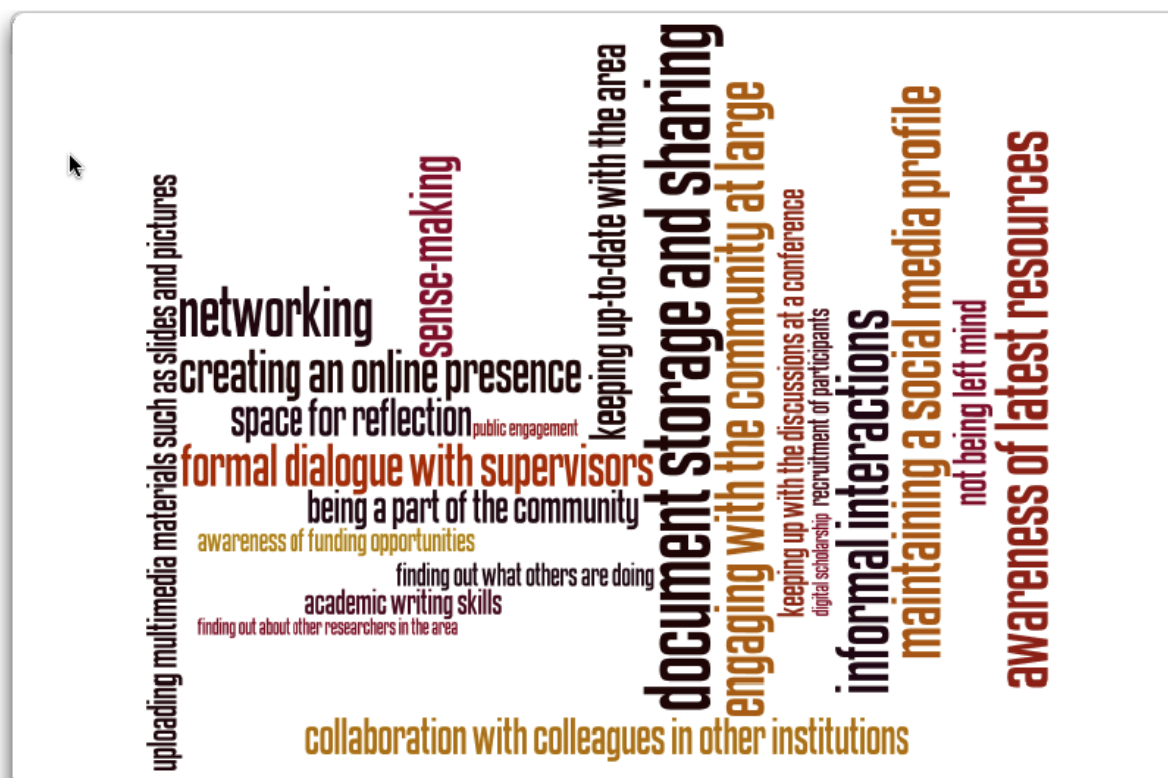
Resources

Viégas, F.B., Wattenberg, M. & Feinberg, J. (2009). Participatory visualization with Wordle. IEEE transactions on visualization and computer graphics, vol. 15, no. 6, pp.1137-1144. Available at:

[http://domino.watson.ibm.com/cambridge/research.nsf/58bac2a2a6b05a1285256b30005b3953/6878415e7fd0efa48525766d00715513/\\$FILE/TR_2009.05_wordle_final2.pdf](http://domino.watson.ibm.com/cambridge/research.nsf/58bac2a2a6b05a1285256b30005b3953/6878415e7fd0efa48525766d00715513/$FILE/TR_2009.05_wordle_final2.pdf)

Minocha, S. (2010). Wordle and its use for visualising user data. Available at: http://www.olnet.org/files/olnet/Karen_Wordle.pdf

Wordle showing the use of social media by researchers in our data set



YouTube for researchers

What is YouTube?

YouTube www.youtube.com is a video-sharing site on which users can upload, share, and view videos. YouTube has a Research Channel www.youtube.com/user/ResearchChannel

How to get started?

You can watch the videos without registration, but registered users can upload an unlimited number of videos. You can register by creating an account on YouTube's website.

How is it useful for researchers and for developing research skills?

- To watch videos related to research by experts and non-experts
- To learn through exemplars to communicate research effectively to a range of audiences through videos
- To publicise and promote research
- To learn to articulate ideas clearly for a range of audience by viewing videos on the site and by preparing and posting videos on the site, and through the comments received
- It helps to promote creativity and an enquiring approach to research
- To understand how videos can help promote the public understanding of one's research
- To build a community of researchers with similar research interests
- To be able to embed your YouTube videos in your website or blog
- To be able to read reviews and post reviews on the videos

Resources

4 tools for conducting keyword research on YouTube,
www.clickz.com/clickz/column/2117428/tools-conducting-keyword-research-youtube

Chenail, R.J., 2011. YouTube as a qualitative research asset: Reviewing user generated videos as learning resources. The Qualitative Report, vol. 16, no. 1, pp. 229–235. Available at: <http://www.nova.edu/ssss/QR/QR16-1/youtube.pdf>

The Open University Research: OUView Research, OU Research's channel on YouTube,
<http://www.youtube.com/ouresearch>

To Impress, Tufts Prospects Turn to YouTube,
http://www.nytimes.com/2010/02/23/education/23tufts.html?_r=2&hp

A postgraduate researcher discusses her use of YouTube:

I was designing an experiment that involved video analysis in area XXX... so to practise, I watched several videos on YouTube as a source of ideas and for observing and analysing behaviours... it was very useful to plan my own experiments..

16 Strengths and weaknesses of tools and the level of interactivity

In this section, we present the strengths and weaknesses of the key tools we encountered in our research. We have also listed the nature of interaction that the tool provides, synchronous or asynchronous, and the degree of interactivity afforded by the tool for researcher-to-researcher interactions and for researcher-to-supervisor interactions. The degree of interactivity is based on a lightweight analysis from our observations and as reported by the participants in this research. The stated ratings in this table specify the potential degree of interactivity. The actual ratings of Low, Medium and High will depend on the usage of the tool in a particular context and on the individual experiences of researchers and supervisors.

Technology	Useful for	Weaknesses	Degree of interactivity		
			Synchronous or asynchronous	Researcher to researcher	Researcher to supervisors
Second Life and other 3D virtual worlds	Supervision meetings Role playing Networking Creating real-life like 3D simulations Rehearsing research techniques such as interviews, focus groups, user-observations	Avatar-driven Entry costs Requires a computer with a high-specification graphics card Requires sufficient bandwidth	Synchronous or asynchronous	High	High
Twitter	Networking Public engagement Latest news and trends	Requires effort for reputation management Can be distracting Requires filtering Low signal to noise ration	Asynchronous	High	Low
Facebook	Keeping track of the activities of fellow researchers Keeping track of events Joining groups Engendering a sense of	Keeping the boundaries of personal and professional lives Taking measures to control the extent to which personal information is being shared	Asynchronous or synchronous	High	Low to high

Technology	Useful for	Weaknesses	Degree of interactivity		
			Synchronous or asynchronous	Researcher to researcher	Researcher to supervisors
	community	Can be distracting Has privacy issues			
Online Bibliographic reference management tools (e.g. Mendeley)	Having an online bibliography that is accessible from anywhere Networking (although limited) Coming across relevant resources stored by other researchers	Requires a networked connection for access Vulnerability of data if the tool is withdrawn	Asynchronous	Medium	Medium
Social bookmarking tools	Having a repository of online resources that can be accessible from anywhere Networking Coming across relevant resources chosen by other researchers	Requires networked connection for access Vulnerability of data if the tool is withdrawn Privacy issues	Asynchronous	Medium	Medium
Online conferencing tools (e.g. Skype, Elluminate or Blackboard collaborate)	Attending online meetings and events Useful for networking in online events Possible interactions with experts in online events	Requires a fast (broadband connection) Quality of connection can be variable Requires awareness of online etiquette, norms and protocols Corporate networks sometimes do not allow conferencing tools such as Skype and Elluminate	Synchronous	Medium	Medium
Wiki	Documentation storage Dissemination Self-expression and reflection	Limited formatting Limited editing facilities Does not include a discussion	Asynchronous	Low to high	Low to high

Technology	Useful for	Weaknesses	Degree of interactivity		
			Synchronous or asynchronous	Researcher to researcher	Researcher to supervisors
	Collaborative authoring Potential for public engagement Networking	environment			
Blog	Self-expression and reflection Dissemination Receiving comments Potential for public engagement Networking Developing writing skills	Requires regular attention Reach is arbitrary Not an academic voice Takes up lot of time and effort to get a following Requires effort for reputation management Can become unwieldy	Asynchronous	Low to high	Low to high
LinkedIn	Networking Joining groups Maintaining a professional external profile Keeping track of fellow researchers Possible interaction with experts	Requires effort to keep the profile up-to-date Requires taking hard decisions to accept/reject invitations for connections so as to maintain one's profile Not obvious how to manage the profile or network effectively	Asynchronous	Low to high	n/a
Online collaborative document authoring systems which have a suite of tools (e.g. Google Docs)	Enables collaborative authoring Enables networking	Concerns about the privacy of data Sustainability issues (what if the service/tool is withdrawn)	Asynchronous	Low	Medium to high
Online	Enables building project/team	Concerns about the security of	Asynchronous	Low	Medium to

Technology	Useful for	Weaknesses	Degree of interactivity		
			Synchronous or asynchronous	Researcher to researcher	Researcher to supervisors
document storage and sharing systems (dropbox, box.net)	online repositories Enables sharing of large files	data Sustainability issues (what if the service/tool is withdrawn) Concerns about storing data from research (ethical implications of storing the data in the 'cloud')			high
Multi-media sharing sites (e.g. YouTube, SlideShare, podcasts in iTunesU)	For communication and dissemination For public engagement Facilitates networking	Requires judgement and efforts to maintain professional standards of the materials being shared Requires tracking of the reviews Requires tracking of any queries or comments being received	Asynchronous	Low	Low
Curation tools	For consolidating the resources/content on a specialised topic from various online sources Facilitates networking with other researchers in the area Helps to build a profile/presence in a specific research area	Requires careful choice of the content to be curated Requires constant attention to provide up-to-date content Raises expectations of the community as seen/perceived as an 'expert' in a specialised area Can overload followers if the messages related to any updates in the content are sent automatically to all the followers on Twitter	Asynchronous	Low	Low
RSS feeds	Receiving alerts	Requires one to know of the relevant resources and which	n/a	n/a	n/a

Technology	Useful for	Weaknesses	Degree of interactivity		
			Synchronous or asynchronous	Researcher to researcher	Researcher to supervisors
	Receiving news items and articles in one place Consolidating relevant resources	provide an RSS feed Selection is crucial Can generate information load			

17 Using Apps on a mobile phone and on an iPad to support research

In this section, we present scenarios of two postgraduate researchers who are using Apps to support their research activities. Donna is a part-time postgraduate researcher. She has an iPhone, iPad and a Mac Pro (desktop). Jules is a full-time postgraduate researcher. The scenarios are authentic but the names have been anonymised.

The personal stories and resources in this section will be useful for researchers (postgraduate researchers or early career researchers), supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

17.1 Donna's experiences

For storing resources

Donna uses Dropbox (www.dropbox.com/anywhere). Dropbox allows her to sync files across the different machines she uses. Dropbox can synchronise files with a PC too and she has a PC at work.

For maintaining a reference manager

Donna uses Papers (www.mekentosj.com/papers/)⁵⁴ on her iPad. Papers allows you to store your papers, browse through them and synchronise them with your library on the Mac desktop. It allows you to make notes on a particular document or within a document. You can also highlight text while reading papers or copy and paste the text into another document. You can import files in Papers from Dropbox (www.dropbox.com/anywhere).

Alternative: Mendeley is free and works on PC and Linux operating systems.

Taking notes

Donna uses Evernote (www.evernote.com/) to keep her notes, any audio recordings and images, etc. related to her research that she has come across and which she would like to store and consider at a later point. Evernote is free and is available on a variety of mobile devices.

Donna also uses Dragon Dictation (www.nuancemobilelife.com/) to capture her thoughts and ideas while she is on the move and to send notes to herself in an email message. Dragon Dictation is an easy to use voice recognition App and the text content can be sent as an email, blog post, or status update on Facebook or Twitter. However, she prefers to use this App on her iPhone as she said: "a phone is always with me and it would be difficult to speak to an iPad on the move".

Donna also recommended simplenote (<http://simplenoteapp.com/>). Simplenote is free and Donna likes the feature of applying tags to her notes to distinguish, for example, a shopping list from notes related to her research.

⁵⁴ The URLs in this section were last accessed on 17 August 2012.

In meetings, Donna prefers to write her notes using a stylus and Penultimate (www.cocoabox.com/penultimate), a handwriting App for iPad.

For presentations

Donna uses Keynote: <http://www.apple.com/ipad/from-the-app-store/apps-by-apple/keynote.html>

17.2 Jules' experiences

Now we list the various Apps that Jules uses to support her research activities and dialogues.

To-do list on iPhone

Today Basic for daily to-do list: <http://itunes.apple.com/gb/app/today-todo-basic/id341902044?mt=8>

For taking notes

Trunk Notes for note taking: <http://itunes.apple.com/us/app/trunk-notes-note-taking-personal/id302880785?mt=8>

BlueFire for audio note taking: <http://itunes.apple.com/us/app/blue-fire/id336713577?mt=8>

Notes (built-in App on the iPhone) for quick note taking: www.apple.com/iphone/built-in-apps/more-built-in-apps.html

Jules discusses her use of mobile devices and Apps to support note taking and for sketching out ideas:

I tend to use iPhone and iPad Apps for sketching ideas (e.g. note taking, proof reading, conceptualisation), because these devices are more handy and portable than a desktop computer. However, I tend to work on final versions with my laptop (the content of these Apps can be synchronised with my laptop via wifi or usb quite easily).

For sharing files

DropBox for file sharing (in this context, mainly papers which are still not classified in the reference collection or are drafts to be read).

For communication and networking

Twitter/Facebook/LinkedIn/Google+ for posting announcements, latest news, re-tweeting, etc. and staying updated

WhatsApp for instant messaging with colleagues: <http://itunes.apple.com/gb/app/whatsapp-messenger/id310633997?mt=8>

Skype for instant messaging, phone calls, and video calls with colleagues and supervisors: <http://itunes.apple.com/gb/app/skype/id304878510?mt=8>

For reading and annotating papers

Mendeley on the iPad for reading papers from my reference collection:

<http://itunes.apple.com/gb/app/mendeley-reference-manager/id380669300?mt=8>

iAnnotate on the iPad for annotating papers:

<http://itunes.apple.com/gb/app/iannotate-pdf/id363998953?mt=8>

For keeping herself informed and inspired

TedTalks for watching inspirational talks:

<http://itunes.apple.com/gb/app/ted/id376183339?mt=8>

17.3 Resources

The resources include links to listings of Apps, and how Apps and the iPad are being employed in research activities.

8 Apps to make you more productive, <http://hbr.org/web/slideshows/eight-apps-to-make-you-more-productive/1-slide> [accessed 17 August 2012]

App store in iTunes, <http://itunes.apple.com/gb/genre/mobile-software-applications/id36?mt=8> [accessed 17 August 2012]

Library Apps on your smartphone, www.utwente.nl/ub/en/services/MAIN/mobile_apps.docx/ [accessed 27 August 2012]

MIT Libraries website lists Apps for academics,

<http://libguides.mit.edu/content.php?pid=174869&sid=1481874> [accessed 16 August 2012]

My new academic workflow with my iPad, iAnnotate, Mendeley and

Dropbox, <http://culturalbyt.es/post/1125482840/workflow> [accessed 16 August 2012]

Some iPhone Apps for productivity, <http://www.insidehighered.com/blogs/gradhacker/some-iphone-apps-productivity-ixzz1o48qPyp9> [accessed 16 August 2012] this post in Inside Higher Ed is by Terry Brock, PhD candidate in Anthropology at Michigan State University, @brockter

The iPad as a research tool, <http://mikepress.wordpress.com/2010/07/09/ipad-research-apps/> [accessed 16 August 2012]

Using the iPad in Academic Theology, <http://adammlowe.com/2010/07/04/using-the-ipad-in-academic-theology/> [accessed 17 August 2012]

Using iPad , Mac and the web in research, teaching and learning, <http://www.joachim-scholz.com/academipad/> [accessed 17 August 2012]

A researcher mentions how she would take a stylus to her meetings when iPads were not so widespread so that colleagues perceived that she was seriously 'writing' and taking notes:

... This is a behaviour that I don't tend to carry out much now that iPads are more widespread, but when I was an early adopter, I felt that sometimes it [iPad] was seen as a frivolous thing to bring to meetings; 'Writing' with a stylus looked more familiar, and more like the common practice of note-taking compared to swiping around the pad. These days iPads are quite common so I don't feel the need to give that impression!

A postgraduate researcher mentions how some Apps helped to fill the gaps in his knowledge that he was finding difficult to understand and make sense of by reading papers:

... I was starting to struggle with envisioning the brain structures that were being described [in papers]. I found two iPad applications that helped me in this regard. 3D Brain: <http://itunes.apple.com/gb/app/3d-brain/id331399332?mt=8> I found this to be a good basic introduction to brain structures. HD Brain Tutor: (now called Brain Tutor 3D on the App store) <http://itunes.apple.com/gb/app/brain-tutor-3d/id301362928?mt=8>; This application is more technical and seems to be designed more for medical postgraduate researchers. However, I found the guide to XX to be very comprehensive, and the links to relevant research were useful.

18 Digital literacy and digital scholarship

Although the topics of digital literacy and digital scholarship were not the focus of the investigations in this report, we have included some definitions and resources as these topics are frequently discussed with reference to the use of social media tools in research and scholarship. We hope that these resources will help in further investigation of these concepts.

18.1 Digital literacy

Some definitions of digital literacy are:

“Digital literacy is the skills, knowledge and understanding that enables critical, creative, discerning and safe practices when engaging with digital technologies in all areas of life. Some people associate digital literacy simply with the functional skills of being able to use a computer or particular software package effectively. But digital literacy is about much more than having access to or being able to use a computer. It’s about collaborating, staying safe and communicating effectively. It’s about cultural and social awareness and understanding, and it’s about being creative” (Futurelab, 2010)⁵⁵.

“the constantly changing practices through which people make traceable meanings using digital technologies”. (Kevinen and Barton, 2010)⁵⁶

Digital literacy is the ability to succeed in encounters with the electronic infrastructures and tools that make possible the world of the twenty-first century⁵⁷.

The significance of digital literacy in learning and teaching is summarised in this quote:

Digital media literacy continues its rise in importance as a key skill in every discipline and profession.... Although there is broad consensus that digital media literacy is vitally important for today’s postgraduate researchers, what skills constitute digital literacy are still not well-defined nor universally taught.universities are beginning to fold these literacy skills into coursework for postgraduate researchers, but progress continues to be slow. The challenge is exacerbated by the fact that digital technologies morph and change quickly at a rate that generally outpaces curriculum development, Horizon Report, 2011, <http://net.educause.edu/ir/library/pdf/HR2011.pdf> [accessed 20 August 2012]

⁵⁵ Digital literacy across the curriculum, a Futurelab handbook, http://archive.futurelab.org.uk/resources/documents/handbooks/digital_literacy.pdf [accessed 16 August 2012]

⁵⁶ Gillen, J. and Barton, D. (2010). Digital Literacies: A Research Briefing by the Technology Enhanced Learning phase of the Teaching and Learning Research Programme, TLRP, <http://www.tlrp.org/docs/DigitalLiteracies.pdf> [accessed 16 August 2012]

⁵⁷ Martin, A. (2005). DigEuLit – A European Framework for digital literacy: a progress report, http://www.jelit.org/65/01/JeLit_Paper_31.pdf [accessed 16 August 2012]

In their paper⁵⁸, Eshet-Alkalai and Chajut (2009) state that digital literacy consists of six skills, arguing that it encompasses all the cognitive challenges faced by users of modern digital environments:

- (a) Photo-visual literacy is the ability to work effectively with digital environments, such as user interfaces, that employ graphical communication
- (b) Reproduction literacy is the ability to create authentic, meaningful written text/articles and artwork by reproducing and manipulating pre-existing digital text, visuals, and audio pieces
- (c) Branching literacy is the ability to construct knowledge by a nonlinear navigation through knowledge domains, such as in the Internet and other hypermedia environments
- (d) Information literacy is the ability to consume information critically and sort out false and biased information
- (e) Socio-emotional literacy is the ability to communicate effectively on online communication platforms such as discussion groups and chat-rooms
- (f) Real-time thinking skill is the ability to process and evaluate large volumes of information in real time, such as in computer games and chat-rooms

Listed below are some of the key resources on digital literacy.

Resources

20 ways of thinking about digital literacy in higher education,

<http://www.guardian.co.uk/higher-education-network/blog/2012/may/15/digital-literacy-in-universities> [accessed 16 August 2012]

Connecting the digital dots: literacy of the 21st century,

<http://net.educause.edu/ir/library/pdf/EQM0621.pdf> [accessed 16 August 2012]

Digital and media literacy: A plan of action, http://www.knightcomm.org/wp-content/uploads/2010/12/Digital_and_Media_Literacy_A_Plan_of_Action.pdf [accessed 17 August 2012]

Investing in digital literacy through social media, <http://socialmediacub.org/blogs/social-media-education/investing-digital-literacy-through-social-media> [accessed 17 August 2012]

Lamb, A. (2010). Everyone does it: Teaching ethical use of technology, *Knowledge Quest*, vol. 39, no. 1, pp. 63-65.

Learning literacies in a digital age,

<http://www.jisc.ac.uk/publications/briefingpapers/2009/learningliteraciesbp.aspx> [accessed 16 August 2012]

⁵⁸ Eshet-Alkalai and Chajut, E. (2009). Changes over time in digital literacy, *Cybertechnology and behavior*, vol. 12, no. 6, pp. 713-715.

Poore, M. (2011). Digital literacy: human flourishing and collective intelligence in a knowledge society, *Literacy Learning: the Middle Years*, vol. 19, no. 2, pp. 20-26

Mobile perspectives: on teaching mobile literacy,
<http://net.educause.edu/ir/library/pdf/ERM1120.pdf> [accessed 16 August 2012]

Also, see CyberSmart, <http://cybersmartcurriculum.org/>, Digital Citizenship <http://www.digitalcitizenship.net/> and Digizen <http://www.digizen.org/> [accessed 16 August 2012]

Supervisors based in the Computing Department of The Open University, UK discussing their concerns of imparting digital literacy skills to researchers⁵⁹:

With technology playing a significant role in mediating the interaction with our postgraduate researchers, serious considerations are also given to developing their online literacy. It should be noted that being an IT practitioner does not equate to having a high level of online literacy: our postgraduate researchers may well be sophisticated software architects, able to deliver complex organisational software, but they may not have much experience of using online technology for communication or team work.

18.2 Digital scholarship

One of the definitions of **digital scholarship** proposed by the American Council of Learned Societies (2006, p.7)⁶⁰ has emphasised new types of knowledge products, and included in the notion of digital scholarship the following practices:

- Building a digital collection of information for further study and analysis
- Creating appropriate tools for collection-building
- Creating appropriate tools for the analysis and study of collections
- Using digital collections and analytical tools to generate new intellectual products
- Creating authoring tools for these new intellectual products, either in traditional forms or in digital form

⁵⁹ Hall, J. and Rapanotti, L. (2012). Enterprising research skills: academia's changing role, *International Journal of Learning and Intellectual Capital*, (In Press), <http://oro.open.ac.uk/29990/>.

⁶⁰ American Council of Learned Societies Commission (ACLS). (2006). *Our cultural commonwealth: The final report of the American council of learned societies commission on Cyberinfrastructure for the humanities and social sciences*. Available at: <http://www.acls.org/cyberinfrastructure/ourculturalcommonwealth.pdf> [accessed 17 August 2012]

Pearce et al. 2010⁶¹ argue that **digital scholarship** is “more than just using information and communication technologies to research, teach and collaborate, but it is embracing the open values, ideology and potential of technologies born of peer-to-peer networking and wiki ways of working in order to benefit both the academy and society.”

In academic discourses, a range of other terms has been used to describe digital scholarship, such as ‘eScholarship’, ‘social scholarship’ and ‘Scholarship 2.0’.

These are some other definitions from the literature:

Social scholarship “is the practice in which the use of social tools is an integral part of the research and publishing process. [and is characterized by] openness, conversation, collaboration, access, sharing and transparent revision” (Cohen, 2007)⁶².

“Thus, we view how scholars use digital technologies to support scholarship as including a set of practices and dispositions that have the potential to fundamentally alter the way we view scholarship. We define these practices as **Networked Participatory Scholarship** (NPS) and consider them to go beyond digital scholarship in both scope and value. Networked Participatory Scholarship is the emergent practice of scholars’ use of participatory technologies and online social networks to share, reflect upon, critique, improve, validate, and further their scholarship” (Veletsianos and Kimmoms, 2012)⁶³.

The individuals that employ digital tools in their scholarship have been described in a variety of ways in the literature: social scholars, open scholars, digital scholars, etc. For example, a social scholar initiates or joins an online community devoted to her topic, using a number of social software services or tools. A digital scholar is someone who is open, digital and networked. An open scholar is one who makes their intellectual projects and processes digitally visible and who invites and encourages on-going criticism of their work and secondary uses of any or all parts of it. The common characteristics of all these definitions are adoption of social software technologies, collaboration, sharing and openness.

Listed below are some key resources on digital scholarship that we have come across.

Resources

Articles on Evaluating Digital Scholarship are available (free access) in this issue of Profession 2011. Available at: <http://www.mla-journals.org/toc/prof/2011/1> [accessed 16 August 2012]

⁶¹ Pearce, N., Weller, M., Scanlon, E., and Kinsley, S. (2010). Digital scholarship considered: how new technologies could transform academic work in education. Available at: <http://ineducation.ca/article/digital-scholarship-considered-how-new-technologies-could-transform-academic-work> [accessed 17 August 2012]

⁶² Cohen, L. (2007). Social scholarship on the rise, Blog entry posted to Library 2.0: an academic’s perspective. Available at: http://liblogs.albany.edu/library20/2007/04/social_scholarship_on_the_rise.html [accessed 17 August 2012]

⁶³ Veletsianos, G. and Kimmons, R. (2012). Networked participatory scholarship: emergent technological pressures toward open and digital scholarship in online networks, Computers and Education, vol. 58, no. 2, pp. 766-774.

Borgman, C. (2007). *Scholarship in the digital age: Information, Infrastructure and the Internet*, The MIT Press.

Burdick, A., Willis, H. (2011). Digital learning, digital scholarship, and design thinking, *Design studies*, vol. 32, issue 6, pp. 546-556. Available at:
<http://www.dab.uts.edu.au/research/conferences/dtrs8/docs/DTRS8-Burdick-et-al.pdf>
[accessed 16 August 2012]

Cheverie, J. F. (2009). Digital scholarship in the university tenure and promotion process: a report on the sixth scholarly communication symposium at Georgetown university library, *Journal of Scholarly Publishing*, vol. 40, no. 3, pp. 219-230.

Digital Researcher 2012, Ten digital scholarship lessons in ten videos, Martin Weller's Keynote resources, <http://www.vitae.ac.uk/researchers/1528-480251/all/513741/Digital-Researcher-2012.html> [accessed 29 August 2012]

Digital scholarship: how scholarship is being transformed,
<http://www.createchange.org/scholarship/index.shtml> [accessed 16 August 2012]

The Ed Techie, Digital Scholarship,
http://nogoodreason.typepad.co.uk/no_good_reason/digital-scholarship/ [accessed 29 August 2012]

Greenhow, C. (2009). Social scholarship: applying social networking technologies to research practices, *Knowledge quest*, vol. 37, no. 4, pp. 42-47.

Mutula, S. M. (2011). Ethics and trust in digital scholarship, *Electronic Library*, vol. 29, no. 2, pp. 261-276.

The digital scholar, <http://www.thedigitalscholar.com/> [accessed 16 August 2012]

Weller, M. (2011). *The digital scholar: How technology is transforming scholarly practice*, Bloomsbury Academic.

19 Bibliography

In this section, we have consolidated resources for various topics that are related to the use of technologies and particularly, social media, in research dialogues.

The resources in this section will be useful for researchers (postgraduate researchers or early career researchers), and supervisors and managers who supervise and manage researchers, and, in general, for academics who are engaged with social media tools, or are interested in adopting social media tools in their research dialogues.

Supervising postgraduate researchers at a distance

Brahme, M. and Walters, L. (2010). While technology poses as the great equalizer, distance still rules the experience. *Journal of Library Administration*, vol. 50, no. 5, pp. 484-514.

Evans, T. (2002). Part-time research students: are they producing knowledge where it counts? *Higher Education Research and Development*, vol. 21, no. 2, pp. 155-165.

Hall, J. and Rapanotti, L. (2012). Enterprising research skills: academia's changing role, *International Journal of Learning and Intellectual Capital*, (In Press), <http://oro.open.ac.uk/29990/> [accessed 16 August 2012]

Lubega, J. and Niyitegeka, M. (2008). Integrating E-Supervision in Higher Educational Learning. In Aisbett, J., Gibbon, G., Rodrigues, A. J., Kizza, M. J., Nath, R. and Renardel, G. R.: *Strengthening the Role of ICT in Development*, vol. IV, pp. 351-358.

Sussex, R. (2008). Technological options in supervising remote research students, *Higher Education*, vol. 55, no. 1, pp. 121-137.

Stacey, E. (1997). A virtual campus: The experience of postgraduate students studying through electronic communication and resource access. <http://pandora.nla.gov.au/nph-wb/19990209130000/http://ultibase.rmit.edu.au/Articles/stace1.html> [accessed 19 August 2012]

Unwin, T. (2007). Reflections on supervising distance-based PhD students. www.gq.rhul.ac.uk/ict4d/distance-based%20PhDs.pdf [accessed 16 August 2012]

Wikeley, F. and Muschamp, Y. (2004). Pedagogical implications of working with doctoral students at a distance. *Distance Education*, vol. 25, no. 1, pp. 125-143.

Social media in education

60 inspiring examples of Twitter in the classroom,

<http://www.onlineuniversities.com/blog/2011/12/60-inspiring-examples-of-twitter-in-the-classroom/> [accessed 29 August 2012]

Greenhow, C. (2011). Online social networks and learning. *On the Horizon*, vol. 19, no. 1, pp. 4-12.

Greenhow, C., Robelia, B. and Hughes, J.E. (2009). Learning, Teaching, and Scholarship in a Digital Age: Web 2.0 and Classroom Research: What Path Should We Take Now? *Educational Researcher*, vol. 38, no.4, pp.246-259.

Hatzipanagos, S., Warburton, S. and Klinger, K. (2009). Handbook of Research on Social Software and Developing Community Ontologies. <http://services.igi-global.com/resolvedoi/resolve.aspx?doi=10.4018/978-1-60566-208-4> [accessed 16 August 2012]

Ullrich, C., Borau, K., Luo, H., Tan, X., Shen, L., and Shen, R. (2008). Why Web 2.0 is good for learning and for research: principles and prototypes. *Track: Social Networks and Web 2.0, International World Wide Web Conference Committee (IW3C2)*, pp. 705-714. Available at: <http://www2008.org/papers/pdf/p705-ullrichA.pdf> [accessed 16 August 2012]

Use of technologies by researchers

Carpenter, J., Wetheridge, L., Smith, N., Goodman, M., and Struijvé, O. (2010). Researchers of Tomorrow: A three year (BL/JISC) study tracking the research behaviour of 'Generation Y' doctoral students. Available at: http://www.efc.co.uk/projects/researchers_of_tomorrow.jsp [accessed 16 August 2012]

Covi, L. (2000). Debunking the myth of the Nintendo generation: how doctoral students introduce new electronic communication practices into university research. *Journal of the American Society for Information Science*, vol. 51, no. 14, pp. 1284-1294.

Greenhow, C. (2009). Social scholarship: applying social networking technologies to research practices. *Knowledge Quest*, vol. 37, no. 4, pp. 42-47.

If you build it, will they come? How researchers perceive and use Web 2.0, <http://rinarchive.jisc-collections.ac.uk/our-work/communicating-and-disseminating-research/use-and-relevance-web-20-researchers> [accessed 29 August 2012]

Researchers of Tomorrow: The research behaviour of generation Y students,
<http://www.jisc.ac.uk/publications/reports/2012/researchers-of-tomorrow> [accessed 16 August 2012]

Social media tools and their role in academia and in research dialogues

Academia Web 2.0: An introduction to social and participatory media,
<http://www.slideshare.net/andycoverdale/commonwealth-scholars-conference> [accessed 16 August 2012]

Bamboo DiRT [beta] Digital Research Tools, <http://dirt.projectbamboo.org/> [accessed 16 August 2012]

Blogs vs forums vs Facebook vs Branded online community (SlideShare presentation),
<http://www.slideshare.net/ldelong/blog-vs-forum-vs-facebook-vs-branded-online-community> [accessed 16 August 2012]

Connecting researchers at the University of Bath, <http://www.ariadne.ac.uk/issue67/cope-jones/> [accessed 16 August 2012]

Going viral: using social media to publicise academic research,
<http://www.guardian.co.uk/higher-education-network/blog/2011/apr/11/communications-marketing-management-admin-and-services> [accessed 27 January 2012]

Impact of Web 2.0 on scholarly communication,
<http://www.slideshare.net/MeikPoschen/impact-of-web-20-on-scholarly-communication> [accessed 29 August 2012]

Lupton, D. (2012). Digital Sociology: An Introduction. Sydney: University of Sydney, Available at: <http://ses.library.usyd.edu.au/bitstream/2123/8621/2/Digital%20Sociology.pdf> [accessed 16 August 2012].

Mandavilli, A. (2011). Trial by Twitter, *Nature*, vol. 269, pp. 286-287.

[this paper discussed the challenges that researchers face in reacting when their papers are discussed over the social media within days of publication.]

PLN: your personal learning network made easy,
<http://onceateacher.wordpress.com/2009/05/05/pln-your-personal-learning-network-made-easy/> [accessed 16 August 2012]

Researchers and social media: uptake increases when obvious benefits result, <http://scholarlykitchen.sspnet.org/2011/03/01/researchers-and-social-media-uptake-increases-when-obvious-benefits-result/> [accessed 20 August 2012]

Research collaboration tools, <http://www.library.uq.edu.au/research-support/research-collaboration-tools> [accessed 16 August 2012]

Social media and research workflow, CIBER, University College, London, UK, 14th December 2010. <http://www.ucl.ac.uk/infostudies/research/ciber/social-media-report.pdf> [accessed 16 August 2012]

Social media: benefits for researchers: (SlideShare presentation), <http://www.slideshare.net/ignatia/social-media-benefits-for-researchers-def> [accessed 16 August 2012]

Social media in higher education: New dimensions to learning, <http://www.slideshare.net/kimbowa/social-media-in-higher-education-13403095> [accessed 16 August 2012]

Social media for researchers, <http://prezi.com/pxltpfnjc5ck/social-media-for-researchers/> [accessed 29 August 2012]

Social media lures academics frustrated by journals, <http://chronicle.com/article/Social-Media-Lure-Academics/126426/> [accessed 16 August 2012]

Social media is more than simply a marketing tool for academic research, <http://www.guardian.co.uk/higher-education-network/blog/2012/jul/24/social-media-academic-research-tool> [accessed 29 August 2012]

Social scholarship on the rise, http://liblogs.albany.edu/library20/2007/04/social_scholarship_on_the_rise.html [accessed 16 August 2012]

Social media: why this matters to everyone in education, <http://hetl.org/2012/08/12/social-media-why-it-matters-to-everyone-in-education/> [accessed 16 August 2012]

The importance of being a connected educator, <http://durff.visibli.com/share/gkW7L4> [accessed 18 August 2012]

Using social media to communicate research outputs, <http://www.ciard.net/pathways/using-social-media-communicate-research-outputs> [accessed 16 August 2012]

Why educators should spend 15 minutes a day on social media, <http://www.convergemag.com/training/Why-Educators-Should-Spend-Time-Daily-on-Social-Media.html> [accessed 17 August 2012]

Role of social media or Web 2.0 tools as a research tool

Collins, E. and Hide, B. (2010). Use and relevance of Web 2.0 resources for researchers, http://elpub.scix.net/cgi-bin/works/Show?_id=119_elpub2010 [accessed 16 August 2012]

Shneiderman, B. Preece, J. and Pirolli, (2011). Realizing the value of social media requires innovative computing research, Communications of the ACM, vol. 54, no. 9, pp. 34-37

Snee, H. (2008). Web 2.0 as a social science research tool, British Library. Available at: <http://www.bl.uk/reshelp/bldept/socsci/socint/web2/web2.pdf> [accessed 16 August 2012]

Social media for arts and humanities researchers, [http://www.netvibes.com/nulibartsweb2 - Welcome](http://www.netvibes.com/nulibartsweb2-Welcome) [accessed 29 August 2012]

Web 2.0 tools for researchers, <http://www.slideshare.net/tbirdcymru/web-20-tools-for-researchers> [accessed 29 August 2012]

Web App analyzes Tweets in real time for a record of historic events, <http://mashable.com/2012/02/17/twitris/> [accessed 16 August 2012]

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20 Dissemination activities related to this handbook

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About Vitae

Vitae is supported by Research Councils UK (RCUK) and managed by CRAC: The Career Development Organisation and delivered in partnership with regional Hub host universities.

Vitae works with UK higher education institutions (HEIs) to embed professional and career development in the research environment. Vitae plays a major role in innovating, sharing practice and enhancing the capability of the higher education sector to provide professional development and training for researchers.

Our vision is for the UK to be world-class in supporting the personal, professional and career development of researchers. Our aims:

- **building human capital** by influencing the development and implementation of effective policy relating to researcher development
- **enhancing higher education provision** to train and develop researchers
- **empowering researchers** to make an impact in their careers
- **evidencing the impact** of professional and career development support for researchers



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The Open University (OU) is the largest academic institution in the UK and a world leader in flexible distance learning. Since it began in 1969, the OU has taught more than 1.7 million students and has more than 264,000 current students, including 18,000 overseas.

The OU has been one of the top three UK universities for student satisfaction in the National Student Survey every year since the survey began in 2005. In 2010/11 it had a 93 per cent satisfaction rating. Over 70% of students are in full-time or part-time employment, and four out of five FTSE 100 companies have sponsored staff to take OU courses.

In the UK's latest Research Assessment Exercise (RAE 2008) the Open University was ranked in the top third of UK higher education institutions. More than 50% of OU research was assessed in the RAE as internationally excellent, with 14% as world leading.

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